



Maternal and Child Nutrition 4

The politics of reducing malnutrition: building commitment and accelerating progress

Stuart Gillespie,* Lawrence Haddad,* Venkatesh Mannar, Purnima Menon, Nicholas Nisbett, and the Maternal and Child Nutrition Study Group

Lancet 2013; 382: 552–69

Published Online

June 6, 2012

[http://dx.doi.org/10.1016/S0140-6736\(13\)60842-9](http://dx.doi.org/10.1016/S0140-6736(13)60842-9)

This is the fourth in a Series of four papers about maternal and child nutrition

*Joint lead authors

International Food Policy Research Institute, Washington, DC, USA (S Gillespie PhD); Institute of Development Studies, Brighton, UK

(Prof L Haddad PhD;

N Nisbett PhD); Micronutrient Initiative, Ottawa, ON, Canada

In the past 5 years, political discourse about the challenge of undernutrition has increased substantially at national and international levels and has led to stated commitments from many national governments, international organisations, and donors. The Scaling Up Nutrition movement has both driven, and been driven by, this developing momentum. Harmonisation has increased among stakeholders, with regard to their understanding of the main causes of malnutrition and to the various options for addressing it. The main challenges are to enhance and expand the quality and coverage of nutrition-specific interventions, and to maximise the nutrition sensitivity of more distal interventions, such as agriculture, social protection, and water and sanitation. But a crucial third level of action exists, which relates to the environments and processes that underpin and shape political and policy processes. We focus on this neglected level. We address several fundamental questions: how can enabling environments and processes be cultivated, sustained, and ultimately translated into results on the ground? How has high-level political momentum been generated? What needs to happen to turn this momentum into results? How can we ensure that high-quality, well-resourced interventions for nutrition are available to those who need them, and that agriculture, social protection, and water and sanitation systems and programmes are proactively reoriented to support nutrition goals? We use a six-cell framework to discuss the ways in which three domains (knowledge and evidence, politics and governance, and capacity and resources) are pivotal to create and sustain political momentum, and to translate momentum into results in high-burden countries.

Key messages

- Emerging country experiences show that rates of undernutrition reduction can be accelerated with deliberate action.
- Politicians and policy makers who want to promote broad-based growth and prevent human suffering should prioritise investment in scale-up of nutrition-specific interventions, and should maximise the nutrition sensitivity of national development processes.
- Findings from studies of nutrition governance and policy processes broadly concur on three factors that shape enabling environments: knowledge and evidence, politics and governance, and capacity and resources.
- Framing of undernutrition reduction as an apolitical issue is short sighted and self-defeating. Political calculations are at the basis of effective coordination between sectors, national and subnational levels, private sector engagement, resource mobilisation, and state accountability to its citizens.
- Political commitment can be developed in a short time, but commitment must not be squandered—conversion to results needs a different set of strategies and skills
- Leadership for nutrition, at all levels, and from various perspectives, is fundamentally important for creating and sustaining momentum and for conversion of that momentum into results on the ground.
- Acceleration and sustaining of progress in nutrition will not be possible without national and global support to a long-term process of strengthening systemic and organisational capacities.
- The private sector has substantial potential to contribute to improvements in nutrition, but efforts to realise this have to date been hindered by a scarcity of credible evidence and trust. Both these issues need substantial attention if the positive potential is to be realised.
- Operational research of delivery, implementation, and scale-up of interventions, and contextual analyses about how to shape and sustain enabling environments, is essential as the focus shifts toward action.

Introduction

The nutrition landscape has shifted fundamentally since the first *Lancet* Series on Maternal and Child Undernutrition was published in January, 2008. Since then, almost every major development agency has published a policy document about undernutrition. In a very difficult fiscal climate, official development assistance to the basic nutrition category has increased from US\$259 million in 2008, to \$418 million in 2011—a rise of more than 60% (although it was \$541 million in 2009).¹ Furthermore, the G8 countries reported increases of almost 50% in bilateral spending on nutrition-specific and nutrition-sensitive interventions between 2009 and 2011.² According to Google Trends, “malnutrition”, now matches “HIV/AIDS” in terms of internet interest, whereas 5 years ago, HIV/AIDS received twice as much interest as malnutrition. This shift is attributable to several factors: the food price spikes of 2007–08 sparked renewed media and policy interest in undernutrition, *The Lancet* 2008 Series provided policy makers with a set of tangible interventions that were effective in various locations, and the 2008 Copenhagen Consensus concluded that nutrition interventions were among the most cost effective in development.³

The Scaling Up Nutrition (SUN) movement, which started in September 2010, is the most important symbol of the increased interest in nutrition.⁴ By the middle of May, 2013, the movement had grown to include 35 countries that are committed to the scale-up of direct nutrition interventions and the advancement of nutrition-sensitive development, including 21 of the

34 highest burden countries where 41% of the global burden of child stunting is located (or 56% if India is omitted). As SUN nears its 1000th day, several countries have made advances in terms of building multistakeholder platforms, aligning nutrition-relevant programmes within a common results framework, and mobilising national resources, but it is too soon to evaluate the effect of SUN on rates of undernutrition reduction.

As interest in nutrition has changed, so too has our thinking. The large economic returns to nutrition-specific interventions (paper two in this Series⁵), are clear⁶ and we recognise the potential of nutrition-sensitive interventions (paper three⁷) and the importance of an enabling environment for reduction of undernutrition—the focus of this report.⁸ Most of the concepts and ideas that we develop about enabling environments apply to both undernutrition and the growing problems of overweight and obesity as documented in the first paper in this Series. We focus mainly on undernutrition because as the 2010 Global Burden of Disease estimates show, undernutrition remains the number one risk factor in sub-Saharan Africa, and the fourth in south Asia.⁹ We use evidence generated within academic and scientific institutions and that generated in more real-world, action oriented, transdisciplinary ways that embed nutrition within wider social and political contexts.¹⁰ We used this mixture of evidence types partly because of the paucity of the first type of evidence and partly in recognition that the second type is often more appropriate because it is more practical, politically feasible, and therefore actionable. However, the second type of evidence is not as easy to independently verify or systematise with standard systematic review protocols.

Beyond the nutrition-sensitive programmes and interventions discussed in paper three, other macro-level drivers exist that lie at the end of long causal pathways. Seemingly quite remote from the nutritional wellbeing of children, many such drivers are nonetheless crucially important to shape both national and global political landscapes for nutrition, and basic-level determinants of nutrition status. These aspects are particularly important because each of the various determinants of nutritional outcomes can be vulnerable to sudden changes within, or caused by, these drivers. Examples include climate change, trade, the rate and pattern of economic growth, food and energy prices and volatility, and land-use policies. Previous empirical work at the country level has shown that household income growth is a necessary, but not sufficient driver, of nutrition status.¹¹ In a cross-country study of the drivers of nutritional change over time,¹² four factors emerged as the most robust predictors of reductions in undernutrition worldwide: secondary education for girls, reductions in fertility, accumulation of household assets, and increased access to health services. In view of the scarce evidence for these drivers we do not discuss the related scientific literature. Rather,

we reiterate that through the approaches for shaping enabling environments for nutrition, described here, we might be better able to advocate for attention to nutrition within these broad development debates.

Characterisation of enabling environments

What does an enabling environment for undernutrition reduction look like? In recognition of the general consensus that income growth is necessary but not sufficient for undernutrition reduction,^{7,13,14} we undertook a systematic review of the nutrition-relevant policy process and governance literature (panel 1). After a surge of activity in the late 1970s to early 1980s, a two decade gap ensued in research of nutrition policy processes, punctuated by one book in 1993, until interest re-emerged in 2003. In the past decade, several multicountry and single-country studies of such processes have been undertaken, in which conceptual and analytical frameworks have been applied.^{15–23} These studies sought to uncover key structures, pathways, and dynamics of policy processes for nutrition, with an emphasis on challenges and constraints. In doing so, research from other specialties (eg, political science^{24,25} and health systems²⁶) was drawn on to adopt and adapt analytical frameworks and research methods to study nutrition policy.

We define an enabling environment as political and policy processes that build and sustain momentum for the effective implementation of actions that reduce undernutrition. Rather than wait for political will to emerge by chance, our review clearly shows that a political momentum can be developed and sustained

(V Mannar MS); and International Food Policy Research Institute, New Delhi, India (P Menon PhD)

Correspondence to: Dr Stuart Gillespie, International Food Policy Research Institute, Washington, DC, 20006-1002, USA
s.gillespie@cgiar.org

See Online for appendix

Panel 1: search strategy and selection criteria

For analysis of enabling environments, we searched Medline, Web of Science, and Econlit, between Nov 12 and 16, 2012, with predefined search terms (“nutrition”, “governance” and “poli*”, words to appear in the title of paper), with no date or language restrictions. Results were exported to a bibliographic reference manager (EndNote). We did further searches in ELDIS and Google Scholar to identify references in the grey literature. We screened results for duplicate references and for relevance to this paper.

For assessment of the Scaling Up Nutrition (SUN) movement we used two sources of new data. First, monitoring data from 30 countries (submitted in September, 2012) was provided by the SUN secretariat, including detailed information about core indices being tracked by SUN, local expectations and proposed commitments of SUN focal points in these countries (appendix). The four indicators routinely tracked by SUN relate to the presence of a multistakeholder platform, a legal and political framework, a common results framework, and alignment and mobilisation of resources. Second, we undertook a closed online discussion with the Eldis Communities web platform, a service provided by the Institute of Development Studies, with 75 invited participants from six countries (Bangladesh, Ethiopia, Indonesia, Kenya, Nepal, and Nigeria) from Nov 27, 2012, to Dec 4, 2012, to explore perceived benefits and expectations of joining SUN, the main challenges and constraints faced by countries, and what needs to happen next. Participants consisted of experts from central and subnational government, multilateral and bilateral development agencies, national and international non-governmental organizations, civil society organisations, and research institutions—all of whom are working directly or indirectly in nutrition (appendix).

Panel 2: Framework for creation of an enabling environment for accelerated undernutrition reduction

Framing, generation, and communication of knowledge and evidence

Issues and challenges to creation and sustaining of momentum

- Framing and narratives
- Evidence of outcomes and benefits
- What works and how well do nutrition interventions work relative to others?
- Advocacy to increase priority (civil society)
- Evidence of coverage, scale, and quality

Issues and challenges to conversion of momentum into results

- Implementation research (what works, why, and how?)
- Programme evaluation (impact pathways)
- Generation of demand for evidence of effectiveness

Political economy of stakeholders, ideas, and interests

Issues and challenges to creation and sustaining of momentum

- Incentivising and delivering of horizontal coherence (multisectoral coordination)
- Development of accountability to citizens
- Enabling and incentivising of positive contributions from the private sector

Issues and challenges to conversion of momentum into results

- Delivery of vertical coherence
- The role of civil society and the private sector in delivery

Capacity (individual, organisational, systemic) and financial resources

Issues and challenges to creation and sustaining of momentum

- Leadership and championing
- Systemic and strategic capacity
- Making the case for additional resource mobilisation

Issues and challenges to conversion of momentum into results

- Delivery and operational capacity
- New forms of resource mobilisation
- Prioritisation and sequencing of nutrition action
- Implementation and scale-up

through deliberate action.^{10,23,27} Moreover, translation of any such momentum into effect on nutrition status is far from automatic and needs the deliberate alignment of several factors and processes.^{10,18–22} Our review also emphasises three linked factors as being crucial for building and sustaining of momentum and for conversion of that momentum into results.

First, knowledge and evidence. Undernutrition is a multisectoral challenge that is open to various interpretations (eg, as a health, economic growth, inter-generational rights, or humanitarian issue). Each context needs its own enabling narrative or framing. This multisectoral nature also raises challenges for implementation of nutrition programmes and increases the importance of quality implementation research and impact evaluation. Undernutrition in early life is irreversible; therefore timely and reliable information about nutrition status and its determinants in programmatic contexts is crucial. Additionally, rigorous research is needed to capture the long-term intergenerational benefits of undernutrition prevention, with evidence

communicated clearly to generate pressure on politicians to act. Second, politics and governance. Various stakeholders and agencies, each with different and frequently competing agendas (especially in decentralised systems of governance), need to work together to reduce undernutrition. All but the most extreme manifestations of undernutrition have no visible symptoms and are thus open to neglect, so even well-meaning governments might underinvest in nutrition. Data for nutrition trends and programme effectiveness are often out of date or scarce, allowing unsubstantiated political narratives to be sustained in an evidence vacuum. Third, capacity and resources. Human and organisational capacity need to encompass not only nutrition know-how, but also a set of soft-power skills to operate effectively across boundaries and disciplines, such as leadership for alliance building and networking, communication of the case for collaboration, leveraging of resources, and being able to convey evidence clearly to those in power. Strategic and operational capacities of different stakeholders at several levels are key. Additional financial resources and much better budget data are needed if undernutrition efforts are to be scaled up, with innovation from governments and donors to maximise investment.

Panel 2 shows the issues and challenges for creation and conversion of momentum within these three parameters. We apply this framework to three case studies (Malawi, Peru, and Maharashtra [a state in India]) where trends from the past few years have been positive and rigorous efforts have been made to prioritise nutrition, reshape policy, and scale-up or improve nutrition-related programming (appendix).

Creation and sustaining of momentum

Narratives, knowledge, and evidence

The 2008 *Lancet* Nutrition Series showed how effective marshalling of evidence can create momentum by identifying a set of interventions that were effective at reducing undernutrition in various contexts, identifying a window of opportunity—1000 days—as a focal point, and imparting a sense of priority and feasibility by showing how undernutrition is concentrated in a small set of high-burden countries. The 2008 Series also emphasised the fragmented nature of the international nutrition community with regard to messaging, priorities, and funding,²⁸ and contributed to birth of the SUN movement (panel 3). Undernutrition has unique features that guide the kinds of knowledge and evidence needed for progress (panel 2).

The importance of framing

Reduction of undernutrition is a multisectoral activity, thus choices exist for how it is framed. In Guatemala and Bolivia, framing has been focused on hunger elimination, strongly determined by Brazil's own Zero Hunger campaign.^{18–20} In Peru, civil society developed undernutrition reduction as an electoral issue²¹

Panel 3: Main points from an online electronic consultation among stakeholders from six Scaling Up Nutrition (SUN) countries

SUN represents an unprecedented opportunity for coordination, collaboration, cross learning, and advocacy to catalyse sustainable nutrition gains at national and global levels. Membership implies a national commitment to address undernutrition. SUN's own monitoring system is centred on four key indicators (appendix). However, to track and compare progress between so many countries, monitoring systems will tend to default to quantitative data of what does or does not exist. Quality and process is not so easily measured. For this reason, and to help us to uncover local perceptions about key issues, challenges, and constraints related to translation of SUN ambitions on the ground, online discussions—organised by the Institute of Development Studies and the International Food Policy Research Institute—were undertaken (appendix). 75 key stakeholders from different sectors in Bangladesh, Nepal, Indonesia, Ethiopia, Nigeria, and Kenya were actively involved over the 8 days of consultation, from Nov 27, 2012, to Dec 4, 2012.

In brief, perceived expectations of joining SUN are that it provides a framework and platform for improved coordination and cooperation in nutrition. SUN encourages advocacy, which has increased the number of stakeholders across sectors who are working to address undernutrition. In turn, this increase is hoped to increase leveraging of resources, knowledge sharing, and institutional capacity. The SUN movement is also considered to hold stakeholders (especially the government) accountable, and secure further commitment to improve resource mobilisation and allocation. Areas of perceived progress include increased awareness and advocacy across

sectors. Ambassadors and champions for nutrition at various levels, from the prime minister to the community, have pushed nutrition onto the agenda. Policy makers are increasingly aware of nutrition as a development issue, and some countries have increased nutrition-relevant budgets.

The main perceived challenges and constraints to SUN within countries include little coordination and collaboration between (and within) different ministries, related scarcity of clarity and consensus vision on what scaling up means, undefined roles and responsibilities, and few or ineffective policies and political commitment. Decentralisation of SUN is a major challenge in some countries. Translation of SUN from national to community levels is restricted. The issue of weak capacity (all types and at all levels) was raised several times with particular challenges, including inadequately qualified personnel (eg, doctors and nurses) and community and extension workers (eg, front-line workers and health volunteers) in remote areas, and high employee turnover. Financial resources are often unsustainable and unpredictable with funding for nutrition interventions largely donor driven. Funding for scale-up is insufficient and issues exist about budgetary allocation (emphasis on treatment over prevention) and coordination. Poor quality of monitoring and evaluation data affects assessment of the effect of interventions, weakens advocacy strategies, and jeopardises funding. Finally, views about engagement with the private sector were mixed and suspicion around motivations was reported. Private sector involvement needs close regulation and a framework within which to engage.

(appendix). In India, nutrition has risen on the agenda through a combination of advocacy around the finding that economic growth has not generated nutritional benefits,²⁹ a strong rights-based movement led by the Right to Food initiative,³⁰ and a growing stakeholder consensus of the need for multisectoral action.³¹ In Ghana, which has achieved the fastest decline in child stunting in sub-Saharan Africa in the past 5 years (from 35% in 2003, to 28% in 2008,³² a rate of 1.5 percentage points per year), the agenda was one of investment in agriculture as a driver of economic growth and poverty reduction,³³ together with feeding initiatives for infants and young children, all in the context of a stable political environment.³⁴

The multisectoral nature of undernutrition reduction adds some complexity to the implementation of effective programmes. Even breastfeeding promotion, for example, needs action on various fronts: behavioural change from breastfeeding mothers, workplace opportunities to breastfeed, responsible advertising about breast-milk substitutes, and effective legislation to define and monitor unacceptable behaviour or to challenge countervailing narratives. The returns to high-quality impact evaluation in the face of such complexity are likely

to be large. The inclusion of nutrition objectives and targets within nutrition-sensitive programmes is thought to be important to leverage resources for nutrition within those programmes; however, this hypothesis needs to be tested.

The timeliness, credibility, and persuasiveness of data

The irreversibility of undernutrition early in life makes quick and effective action crucial. The availability of timely and credible data presented in accessible ways can help governments and other stakeholders to be responsive to changing circumstances, and help civil society organisations to hold them accountable for the effectiveness of their interventions. Data from the Demographic and Health Survey and the Multiple Indicator Cluster Survey are essential for evaluation of national trends, but are only collected every 3–5 years and are less useful for immediate programmatic decision making. Surveillance mechanisms, for tracking of nutrition trends and to inform timely decision making, only exist in a few countries.^{35–38} Advances in health management information systems and the growing availability of new technologies could facilitate the real-time monitoring of nutrition outcomes and programme coverage and quality.

When, where, how, and why these new technologies are practical and will lead to responsive and effective action for nutrition are important research issues.^{39,40}

Communication of the benefits to improved nutrition

The benefits of undernutrition reduction are lifelong, and yet their temporal distribution reduces their political appeal. The studies in Guatemala of the long-term benefits of undernutrition prevention^{41,42} have been extremely influential worldwide, and the Consortium on Health Orientated Research in Transitional Societies (COHORTS) group is starting to yield multicountry evidence about the long-term implications of early childhood nutrition.^{43,44} The challenge is to generate contemporary political payoffs to these nutritionally driven long-term labour-market benefits. The demographic transition that many developing countries are experiencing and debating at the highest policy circles presents an example of one such opportunity to communicate the importance of nutrition in ways that resonate. The so-called demographic dividend⁴⁵ due to the declining ratio of adults of non-working age to those of working age will be greatly enhanced if those of working age can secure market employment. Investments in maternal and early childhood nutrition that build human capital can be framed as one way to secure this dividend.

Political economy and governance

The politics of undernutrition reduction have long been neglected. The multitude of involved stakeholders at many levels, the invisibility of undernutrition, and the imbalance of power between governments and multinational organisations, generate little accountability for commitment and delivery, and fuel the political economy of undernutrition reduction.

Global governance

National governments, civil society (global and national), international and regional organisations (including UN agencies, development banks, and the African Union), bilateral donors, charitable foundations, international research organisations (eg, the Consultative Group on International Agricultural Research), academia, and private-sector companies all have a role in the global institutional architecture for nutrition. 5 years ago, the stewardship or governance of this system was fragmented and dysfunctional.²⁸ Since then, a process to reform UN institutional architecture has started and the SUN movement has emerged (panel 3), engaging more than 100 bodies within these organisations. SUN is governed by a lead group of heads of state and other key stakeholders, but is focused mainly on galvanising national and country-led action (panel 3).

Despite SUN's substantial convening power, some external and country-level confusion exists about the role of the SUN movement, the UN Standing Committee on Nutrition, and the UN REACH programme (the latter two focus on UN level technical support and governance coordination, respectively). Most individuals recognise the continued value of the UN Standing Committee, but it remains in a fragile position and in need of further internal reform (unpublished). Other important global initiatives include the multinational 1000 days partnership, the partnership of G8 countries, and the New Alliance for Food Security and Nutrition (consisting of several African countries and private companies). Meanwhile, the UN Secretary-General's High Level Task Force on the Global Food Security Crisis and a revitalised Committee on Food Security have emerged as important bodies, coordinating UN and global responses to food insecurity and complementing the role of existing UN food and agriculture bodies. The World Health Assembly's agreement on six new global undernutrition targets to be achieved by 2025 has also become an important part of the global nutrition focus; however, questions remain about the achievability of these targets⁴⁶ and their incorporation within the framework of the Millennium Development Goals (panel 4).

The true potential of the SUN movement will be realised through its application in each SUN country. Success of the movement will need maintenance of support and consensus amongst all SUN stakeholders, and development of a strong sense of country-level ownership, the absence of which was a major reason for

Panel 4: Nutrition post-2015

Despite the negligible presence of nutrition in the Millennium Development Goals (one indicator of one goal), inclusion of the underweight indicator has probably helped donors and development agencies justify increased attention to nutrition. This increased attention needs to be shown more fully in the next set of development goals to maintain the high levels of commitment and to guide action. We recommend the following approach:

- 1 Find a location for nutrition as an equal partner within a likely goal, such as hunger reduction or poverty or health. This location in a vertical goal will raise the profile of nutrition
- 2 Make sure that nutrition indicators—nutrition-specific and nutrition-sensitive—are located within an additional number of vertical goals, such as gender equity, education, and employment. All these indicators should be linked across the different goals with the framework developed in paper one of this Series to generate a horizontal nutrition goal
- 3 Endorse the six global targets for nutrition-specific indicators (including replacing of underweight with stunting) proposed by the World Health Assembly in 2012

Why not advocate for a separate nutrition goal? A stand-alone nutrition goal has many desirable features: it makes ignoring of malnutrition harder and is likely to galvanise stakeholders in the nutrition (and possibly development) community and in the general public. However, extensive reading of the post-2015 scientific literature⁴⁷ suggests that support for a separate goal is insufficient. Building of support might still be possible, but nutrition lags behind other more high-profile disease burdens; stiff competition might come from other constituencies who think they should have a separate goal (eg, water, sanitation, population); and the case has to be made as to why nutrition would not fit better into closely related goals, such as food or health. There are risks to having a separate nutrition goal: constituencies of the other goals might find it easier to ignore nutrition, and we know that reductions in malnutrition require their engagement. We judge our recommendation as more feasible politically and if done strategically it could well leverage more resources for nutrition, especially from nutrition-sensitive programmes and interventions.

the failure of the multisectoral nutrition planning experiments of the 1970s.⁴⁸ As SUN's global scope increases, so will demands for effective information and knowledge management. Presentation of results that correlate SUN activities with measurable reductions in nutrition indicators will become a key focus.

The need for horizontal coordination

Different agencies, each with different and frequently competing agendas, need to work together if undernutrition is to be reduced. Associations are horizontal (at the same level of government) and vertical (at central, state, and district levels) and the potential for conflicting agendas in all directions is substantial. A political analysis^{21,49} of the horizontal and vertical associations in Brazil, Peru, Ethiopia, Zambia, India, and Bangladesh reached several conclusions regarding the roles of the executive branch of government and well-resourced coordination bodies, the importance of narratives that link nutrition with development, and civil society pressure mechanisms. Another study of multisectoral (horizontal) coordination in Senegal and Colombia¹⁶ emphasised the importance of inclusiveness of institutions and stakeholders, incentives, and lateral (as opposed to top-down) leadership. SUN has sought to promote horizontal coherence through establishment of multisectoral platforms to catalyse and enable complementary, coordinated, and integrated action. However the data from six SUN countries show that convergence and coordination continue to be a challenge (panel 3, appendix).

The need to strengthen accountability

Providers, governments, donors, and the private sector need strong mechanisms to incentivise and hold them accountable for the quality and effectiveness of any nutrition investment. Although the evidence base for nutrition lags behind the positive evidence base for a range of other sectors,⁵⁰ investments to increase commitment and accountability for nutrition services and measure their effects could be one of the most rewarding applications of research to macro (commitment) and micro (accountability) levels. Increases in nutrition commitment and accountability could be achieved through trialing and identification of various innovative new methods and mechanisms (figure), including information and communication technology monitoring systems, commitment indices, and social accountability mechanisms. One such method is the PolicyMaker software for analysis of the political economy of nutrition.⁵¹

Indices of a country's progress towards particular goals, such as the UN Human Development Index and the International Food Policy Research Institute's Global Hunger Index, are increasingly common in development and, if methodologically sound, can be a useful focal point for civil society advocacy.^{52,53} The pros and cons of such indices have been evaluated with the conclusion that a separate index that measures political will and

commitment to fighting hunger and malnutrition is needed.⁵⁴ For governments and donors, the Institute of Development Studies has developed a Nutrition Commitment Index for cross-country and country-specific comparisons over time (panel 5). For food and beverage manufacturers, a new index has been launched by the Global Alliance for Improved Nutrition to evaluate their policies, practices, and performance in contribution to the reduction of undernutrition and overweight and obesity.⁵⁵ The potential of mechanisms, such as social audits and community monitoring, to promote accountability and improve the provision of direct public services is clear^{50,56} and has been positively appraised,⁵⁷ but has not yet been empirically tested for the provision of frontline nutrition services. Empirical evidence about the effect of such accountability mechanisms on the quality of care and health facilities is weak, but encouraging.^{58,59} A trial of community-based monitoring of health service provision in Uganda showed a 33% reduction in mortality in children younger than 5 years and a significant 0.14 increase in weight-for-age Z score.⁶⁰

Civil society engagement

Most of the roughly 100 organisations who have signed up to the SUN movement are civil society organisations. Their role in combating undernutrition is as multi-faceted and multi-functional as the sector itself, but the effect of citizen engagement is difficult to evaluate.⁶¹ Of the many roles of these organisations, four stand out: (1) global and national advocacy to call attention to nutritional deprivation and galvanise commitment to act, (2) ensuring of accountability for nutrition-relevant service coverage and quality, (3) generation of context-specific knowledge about

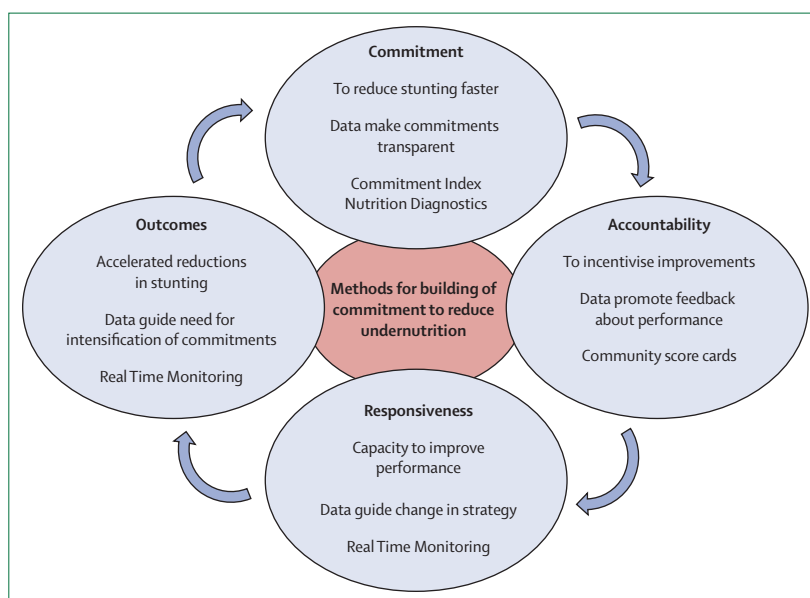


Figure: Examples of methods to improve the commitment, accountability, and responsiveness to undernutrition reduction

Reproduced from reference 8, by permission of Palgrave Macmillan.

Panel 5: The Nutrition Commitment Index

Nutrition outcomes are the result of many factors that governments do and do not have control of. Climate change and associated droughts and floods, and cross-border issues such as arms and drugs trading, mass migration, and capital flight can have enormous effects on nutrition outcomes. Conversely, the commitment to nutrition can be generated and shaped by governments, and should, if informed by evidence, be a positive force for future undernutrition reduction. If commitment can be measured, can it be used to strengthen accountability?

The Nutrition Commitment Index (NCI) is the first attempt to measure government commitment to reducing rates of undernutrition. The index combines secondary data for 12 indicators across three domains (spending, policies, and legislation) at three levels (direct [nutrition-specific] interventions, indirect [nutrition-sensitive] interventions, and the fundamental drivers) to construct an overall index. The 2012 NCI results rank, in order, Guatemala (most commitment to undernutrition reduction), the Gambia, Nepal, Mozambique, Bangladesh, Malawi, Brazil, Indonesia, Madagascar, Tanzania, Peru, and the Philippines as the top 12 of 45 countries for which recent data are available. India, the country which has a third of the undernutrition burden, is in the bottom half of the 45 countries on commitment to reduce undernutrition. The appendix shows case studies for Peru and Malawi. When the

NCI ranks are set against a country's nutrition outcome indicators, we can see how the index might be used to guide resources. In countries where commitment is low and undernutrition rates are high, some resources need to be allocated towards strengthening of commitment. Where both commitment and undernutrition rates are high, most resources can be allocated to the scale-up of and capacity to deliver nutrition programmes.

Although the countries that do well on the NCI do have high levels of stunting, they have some of the fastest declines in stunting rates over the past 20 years. The top 12 countries show a decline in stunting rates between the 1990s and 2000s that is twice as high as the remaining countries. Additionally, the ranks show that the commitment to hunger reduction and the commitment to malnutrition reduction are only weakly correlated: a commitment to hunger reduction does not automatically equate to a commitment to malnutrition reduction. Future econometric work will rigorously explore the associations between nutrition outcomes and nutrition commitment, with attention on other independent variables, which could explain stunting and the time lags between changes in commitment and changes in stunting. Future qualitative work will focus on whether and how the NCI helps mobilise commitment for undernutrition reduction.

For more on **commitment to reduce undernutrition and on stunting trends** see <http://www.hancindex.org>

key drivers of undernutrition and relevant remedial options, and (4) implementation of nutrition programmes and provision of delivery platforms to maximise scale-up and ensure equity by reaching the unreached. Organisations should also be held accountable for their commitment and performance in reducing malnutrition. The table outlines key roles and principles of civil society and private sector engagement in nutrition.

Private sector engagement: maximising potential and managing risks

The scale, know-how, reach, financial resources, and existing involvement of the private sector in actions that determine nutrition status is well known. The share of food and health care purchased through the market is increasing steadily, at all levels of income. This increase has partly taken place because malnutrition exists at all income quintiles and because companies are looking to the base of the pyramid—ie, to the poorest socioeconomic groups^{62,63}—to expand market share⁶⁴ if the initial market size is large enough.^{62,65} Private sector involvement in food and health-care choices goes well beyond the large multinational food and pharmaceutical companies. Agri-food businesses, medium-scale and small-scale processors of staple foods, and private health networks now have an active involvement in the production, marketing, and consumer choice in the purchase of food and other nutrition-relevant goods and services.⁶⁶ Other

developments increase the opportunity for the private sector to contribute to acceleration of malnutrition reduction. For example, new private philanthropic support for development has expanded,⁶⁷ logistics and information and computer technology businesses have emerged, and m-health (health services using mobile technologies) initiatives have flourished, with benefits to service delivery and care management.⁶⁸ New forms of public–private partnerships have emerged in the health sector from which lessons can be learned about how to identify a balance of interests and incentives among partners.⁶⁹ As a result of these many public and private-sector intersections, the interest of the public sector towards business involvement in undernutrition efforts has increased substantially. The SUN Business Network is one indication of this change in interest.⁷⁰

The fourth paper in the 2008 *Lancet* Series acknowledged the “inextricable” role of the private sector and its importance, but also called for additional evaluation of effectiveness and documentation of best practices.⁷¹ However, although the private sector is now even more important in the national nutrition system, too few independent and rigorous evaluations have been done of the effectiveness of involvement of the commercial sector in nutrition. In the absence of such evaluations, distrust of the private sector, especially the food industry, remains high and is somewhat linked to the decades-long tension related to the marketing of breast-milk

	Civil society	Private sector
Framing, generation, and communication of knowledge and evidence	Surveillance to generate data showing severity and distribution of undernutrition Global and national advocacy; framing and packaging of information to galvanise commitment and push nutrition up the development agenda	Generation of evidence about the positive and negative effects of private sector and market-led approaches to nutrition Building of recognition of how the private sector already strongly determines nutrition status (food, pharmaceutical sectors, health care) Assurance of (cost-shared) monitoring and evaluation and absolute transparency of any public-private endeavour (including open data and open-access research)
Political economy of stakeholders, ideas, and interests	Assurance of accountability of different stakeholders (including civil society organisations themselves) for coverage, quality, and equity of actions to reduce undernutrition Contribute to multistakeholder platforms for decision making (eg, in-country support of the Scaling Up Nutrition movement) Strengthening of the voice of communities, women, and children	The public sector (elected governments) should set a regulatory framework and policy direction; national nutrition plans are needed Need to positively shape the substantial and existing effect of the private sector, to harness innovation (eg, mobile health and other information and communication technologies in nutrition), and to explore any comparative advantage in goods and service delivery
Capacity (individual, organisational, systemic) and financial resources	Extra layer of capacity to deliver services and reach marginalised communities Ability to raise financial resources through effective public campaigning	Harness extensive private sector resources (including consumer spending) by creation of demand-side and supply-side incentives for nutritious foods and provision of health care and sanitation services (eg, public-private partnerships for new nutritious products, the potential for cobranding, and price guarantees) Improved public sector and private sector capacity to understand the potential contributions, opportunities, weaknesses, and threats

Table: Key roles and principles of civil society and private sector engagement in nutrition

substitutes in developing countries and sugar-sweetened beverages and fast foods worldwide.⁷² Much of the private-sector dialogue centres around the International Code of Marketing of Breast-milk Substitutes (ie, how to enforce it and the extent of its domain^{73,74}) and around whether the Codex Alimentarius food and nutrient standards give businesses too much freedom to downgrade nutrition concerns.⁷⁵ Some commentators have argued that particular interpretations of the code have almost completely driven the private sector out of efforts to improve the nutrition of children aged 6–24 months.⁷³ But caution is essential in view of the continued code violations by several large-scale private-sector enterprises.⁷⁴

A troubled history combined with continued violations makes it increasingly difficult for the private sector to be a major contributor to the collective creation and sustenance of momentum for malnutrition reduction. This sector has yet to earn the trust of some groups of the nutrition community. In view of the needs and the considerable resources, effect, and convening power of the private sector, this opportunity might be missed. Additionally, opportunities exist for collaboration around advocacy, monitoring, value chains, technical and scientific collaboration, and fortification of staple foods that are uncontentious and deserve further exploration.

When the interests of different participants are not perfectly aligned and when substantial information and power asymmetries exist, such as between large corporations and under-resourced governments, the search for win-win solutions for undernutrition and overweight and obesity is a matter of governance arrangements: how rules are set, monitored, and enforced. Lessons need to be learned from the long experience of the regulation and legislation of fortified foods⁷⁶ and from the experiences of public-private partnerships in international

health,^{77–79} which suggest that such solutions can be identified on the basis of sufficient trust and verification. Such experiences suggest that some urgency exists towards building of trust, especially around infant feeding. Recommendations for building of trust in companies manufacturing infant formula feeds include establishment of a public register of meetings between companies and governments about the International Code of Marketing of Breast-milk Substitutes, strengthening of whistleblowing procedures within companies, and implementation of prevention of code violations into the job descriptions of companies' senior representatives in each country.⁷⁴ Governments need to play their part by enshrining the code and subsequent resolutions into national law, and putting independent, transparent, and effective monitoring mechanisms in place.

Capacity and resources

Leadership in nutrition

All the nutrition success stories—eg, in Brazil, Peru, Vietnam, and Thailand—have strong and effective networks of national nutrition leaders at their core.^{21,80} For undernutrition reduction to be sustained, nutrition leaders at all levels should be able to forge strong alliances (across and between government, civil society, and the private sector), take timely and decisive action, and create and be subject to strong accountability. Enhancement of effective leadership needs investment and yet only a handful of courses in nutrition leadership are offered worldwide. Every year, the African Nutrition Leadership Programme, an African-led initiative, enrolls 30 participants for 10 days⁸¹—less than one professional per African country per year. No nutrition leadership programme exists in south Asia; however, UNICEF India's engagement with young political leaders through the Citizens' Alliance Against

Malnutrition seeks to strengthen political leadership. Panel 6 summarises research done to identify what makes a champion in nutrition.

Leaders and champions in nutrition need systemic and organisational capacity to create and sustain nutrition policy and institutional change. Again, civil society can play a strong part in this aspect as shown, for example, in Peru where civil society champions were linked with political and financial decision makers (appendix).

Understanding of the financial resources available to build commitment for nutrition

A focus on three areas is needed to make the case for additional resources to build and sustain momentum for undernutrition reduction: the cost, an understanding of present resource flows to nutrition, and more and better estimates than presently exist of benefit to cost ratios for nutrition investments at the country level. Answers to these questions could help convince financial analysts in the public and private sectors to invest. Estimations for the SUN movement clearly show the costs of addressing undernutrition via nutrition-specific interventions.⁹² More work is needed to contextualise and specify these costs for different countries and this work is ongoing. Unfortunately, investments in nutrition are hard to track because of the weak designation of donor and government spending. For example, analyses of data from the

Creditor Reporting System, which is maintained by the Development Assistance Committee of the Organisation for Economic Cooperation and Development, show that a substantial proportion of spending designated as nutritional, is actually being spent on non-nutrition projects. Similarly, much nutrition spending is in categories that are not nutritional.^{93,94} Data for donor spending on nutrition often do not match those of governments (unpublished).

However, cost–benefit estimates are quite favourable. With assumptions about the 11% uplift in income attributable to prevention of a third of stunting by age 3 years, and about the 5% discount rate of future benefit streams, average cost–benefit estimates have been generated for 20 countries,⁶ with a median ratio of 18 (Bangladesh). These ratios compare extremely favourably with other investments for which public funds compete.⁹⁵ Findings from the COHORTS study⁹⁶ reinforce the consensus that the first 1000 days is the key window of opportunity for investments. With data from five countries, the COHORTS investigators reported that the growth effects on human capital are largest at age 2 years. The most powerful way of building commitment to increased resource allocation to nutrition could be shown in the example set by countries that have achieved scale-up. The three case studies identified in the appendix provide examples of

Panel 6: What makes a nutrition champion?

In seeking to achieve large-scale, systemic changes to address undernutrition, several initiatives have recognised the important role of key individuals—leaders, champions, catalysts, and policy entrepreneurs—in the development of beneficial policy changes.^{21,25,82,83} Because level of change does not necessarily correspond to levels of formal power, visibility, ambition, or technical knowledge, research is being done to identify and better understand the capacities and attributes of the individuals who have substantially contributed to policy advances for nutrition. This research is based on principles and concepts from complexity science and adult development. Through network and power mapping and consultations with key informants, relevant stakeholders were identified in Kenya and Bangladesh (about 75 stakeholders per country) and semi-structured interviews were done with a purposive sample of these stakeholders (30 in Kenya and 24 in Bangladesh). These interviews provided information to assess the attributes of the interviewee and other influential stakeholders (ie, self-reporting and peer-reporting) and provided further insights into network and power dynamics and case studies. In Kenya and Bangladesh, this research shows that a handful of catalytic individuals, well-connected and trusted in their formal and informal social networks,^{84,85} have played a crucial part in transfer of information, changing of perceptions, and resolving of conflicts; achievements that have proven essential to advance the nutrition agenda in the

context of fragmentation and competing interests between and within various groups of stakeholders.^{23,82,86,87}

Preliminary findings show that these individuals have, in addition to extensive knowledge and experience in nutrition, relatively strongly developed stakeholder awareness and perspective awareness. They show an understanding of the stakeholders relevant to nutrition policy processes and the associations among them, and tend to view the properties of their own and others' perspectives as perspectives with complex contributory causes. Patterns of sense making generally shape one's goals and activities,^{88–90} and the catalytic individuals identified in this study tended to identify ways in which shifts in stakeholder views and associations can lead to positive outcomes; genuinely adapt behaviour, language, and framing of issues to different stakeholders; and focus on establishment of associations of mutual trust, rather than unidirectional forms of influence. This research, led by the Transform Nutrition consortium, is ongoing and will continue in Ethiopia and India. Future research will focus on the ways to move beyond identification and assessment of champions to evaluating ways of supporting them, including through training and capacity building, curricula development, public recognition and support for identified champions (eg, through awards and scholarships); and the development of competency frameworks and institutional and workplace incentives.⁹¹

what can be done to improve nutrition. A few SUN countries should show that increased commitment can be turned into real results—such examples will act as a spur for many others.

Conversion of momentum into results

Knowledge and evidence

Building of momentum for undernutrition reduction is not an easy task, nor is it sufficient; such momentum needs to be translated into ground-level results. Again the three dimensions of an enabling environment come into play: knowledge and evidence about how to scale up interventions in an effective way, the political economy behind the interplay between national and subnational levels of government, and the capacity and resources needed to scale and expand coverage of programmes while retaining cost-effectiveness.

Implementation research: what works, why, and how?

Despite calls to action,^{97,98} and by stark contrast with the Countdown to 2015 report on maternal, newborn, and child survival,⁹⁹ no systematic process is in place for collation of the implementation-related evidence base about how to scale up the vast array of nutrition-specific and nutrition-sensitive interventions with quality and equity. Development of this scientific literature needs careful attention to several factors, but perhaps most importantly, needs a relentless focus on unpacking of programme impact pathways to effects^{71,100,101} and documenting of contextual factors that affect implementation. Comprehensive frameworks already exist to provide insights into the types of process-related and contextual factors that need to be further studied through implementation research. A process convened by the New York Academy of Sciences and WHO for setting of research agendas in nutrition emphasises crucial gaps and a framework to undertake implementation research in nutrition.¹⁰² Examples of such research have been emerging in the form of feasibility studies and formative research,^{103–106} operations research and process evaluations,^{107–111} and costing studies.^{112–114} However, the scientific literature about implementation through delivery platforms, such as community-based or health-facility-based programmes, is more developed than is that of the use of mass media or market-based approaches to scale up interventions.^{115,116}

Much implementation research is from small-scale interventions, as opposed to large-scale programmes or interventions, for which the challenges to ensurance of quality, intensity, equity, and coverage are different and need various factors to operate in concert.^{117–122} Analyses of scaled-up programmes or of scale-up of small area or pilot interventions raise several challenges—eg, establishing of counterfactuals, assurance that real-time process documentation captures nuances of organisational changes that facilitated or hampered scale-up, and that research generated is of a publishable quality.

Monitoring of programme coverage

Inherent in the SUN process is the acknowledgment that programme coverage of nutritionally vulnerable populations has to increase from very low levels; however, routine mechanisms to monitor nutrition-related intervention coverage worldwide are poorly designed. Research of child survival¹⁰⁰ has shown the large gap in scale-up of evidence-based interventions for maternal, newborn, and child survival, many of which have substantial benefits for nutrition, but several nutrition indicators are not yet embedded in these monitoring processes. WHO's Nutrition Landscape Information System¹²³ needs to be strengthened by generation of a consensus on, and expansion of the range of, interventions to be tracked.

Programme evaluations to learn and improve

Programme evaluations play a crucial part in informing the scale-up, reconfiguration, or cessation of programmes. Solid guidance now exists to bring rigour to evaluations of nutrition programmes.^{52,100,124–126} This guidance is needed to create solid ground for evaluation of the progress, and pathways to progress, of nutrition interventions,^{110,127,128} with theory-driven and qualitative evaluations exploring the whys and hows of progress and the extent.^{100,129} Analyses of effectiveness and operational evaluations of innovations that are introduced into scaled-up programmes, or of the process of scale up of innovative programmes from small-scale pilots to a large scale, are essential, but challenging.

Learning during crisis

Increases in the frequency of natural disasters¹³⁰ and the persistence and repeated cycles of conflict¹³¹ raise humanitarian needs and stifle progress in reduction of undernutrition in fragile contexts. The need for effective surveillance; early warning; mitigation; and timely, appropriate, and effective responses to nutrition-related crises is greater than ever. Yet little new evidence has been generated of the effectiveness of emergency interventions since the first *Lancet* Series was published—partly because of persisting ethical concerns and conceptual and practical difficulties posed by research in such situations.¹³² The time has come for increasing recognition of government accountability to lead in the provision of services that are needed to meet short-term emergency-related spikes in demand.¹³³ This situation creates a growing tension between stakeholders who are driven by the humanitarian imperative to deliver timely and effective assistance, and those who seek to strengthen government systemic capacity to lead general efforts to scale up nutrition-related interventions and services. A pertinent example is the community-level treatment of wasting, which in the past decade has moved from being a programme led by non-governmental organisations, to a service integrated within national health systems, which is intended to be accessible to children in need throughout

the year.¹³⁴ How to enable such systems to protect and reinforce the resilience of populations in fragile contexts, and to create a surge in response to increases in acute needs, is still a major challenge.

Political economy and governance

Subnational governance

Just as building and sustaining of commitment is a political process, so too is conversion of momentum into results. Political scientists often conclude that most policy is formulated at the front line, and the situation should be no different for efforts to reduce undernutrition. Findings from the six country nutrition governance study^{21,49} suggest that in addition to the key ingredients for building of momentum, a further five are crucial to generate change: (1) local government capacity to deliver effective nutrition services, (2) local politicians who care about nutrition and are empowered via decentralised budgets and knowledge that nutrition can be a vote winner, (3) timely data for undernutrition, (4) nutrition funding channelled through one funding mechanism rather than fragmented funding streams, and (5) earmarked and protected nutrition funding commitments and exploration of new revenue streams.

The findings for local government incentives and capacity are highly relevant because many countries in Asia and sub-Saharan Africa are rapidly moving to decentralised political, administrative, and financial systems. Decentralisation necessitates building of commitment and capacity at various political and bureaucratic levels at which decisions are made and resources allocated. Although scientific literature is emerging for decentralisation of health systems,^{77,135} the research base is limited to a handful of studies.^{20,27,135–137} In Vietnam for instance, the role of provincial planning for nutrition has been identified as an important bottleneck to translation of national policy intent and frameworks into plans and actions at the provincial level.²⁷

Intersectoral action

The wide recognition that action from several sectors is needed to address nutrition has gained momentum, and several country governments are implementing multi-sectoral and intersectoral plans. However, few examples exist of the factors and processes that should align to enable intersectoral action to generate scaled up nutrition-specific interventions and a nutrition-sensitive household and community environment in which provisions for water, sanitation, social protection, health care, and food security are ensured. Research so far has been of intersectoral planning and action at a policy level,^{16,138} whereas several questions remain about how best to achieve such outcomes at subnational and local levels. Even integration of nutrition actions within the health sector (which is arguably the most ready to absorb nutrition actions) often raises many challenges.¹³⁹ Although such integration has been the focus of several large-scale

nutrition initiatives in the past (eg, LINKAGES) and of some health-sector initiatives (eg, Integrated Management of Childhood Illness), published works of what is needed, and how to achieve integration, are scarce. Integration of nutrition into other sectors, which are less oriented to nutrition, is hampered by issues related to motivations, capacities, and clear guidance.²⁰ Therefore, building of experiential learning and systematic evidence about processes related to intersectoral and multisectoral integration of actions is urgently needed to reduce undernutrition.

Private sector engagement

Several promising areas for private sector engagement in nutrition value chains have been summarised in the past few years.^{66,140} Similarly, many promising non-peer reviewed case studies exist about how food fortification not only generates sales and reputational gains for businesses, but also nutritional benefits via increased consumption of fortified foods.^{141,142} The potential of other types of private sector companies to contribute to nutrition scale-up is also considered important (eg, via mobile technology providers). A major constraint in realisation of this potential is the dearth of independent peer-reviewed studies of such activities and the complete absence of any review of the available evidence, although a review is underway by the Transform Nutrition consortium.

Of peer-reviewed studies relating to the first 1000 days of life, one noted that marketing and selling of multi-nutrient powders in China to the caregivers of children aged 6–24 months reduced the risk of anaemia by 87%.¹⁴³ Another reported decreases in iron and vitamin A deficiency in children aged 6–35 months in western Kenya from the sale of multinutrient powders via community vendors.¹⁴⁴ The private sector has a part to play in the provision of fortified foods that could assist in addressing undernutrition. Attention should be paid to, and guidance be given to, the appropriate marketing of complementary foods for young children older than 6 months, that both protects breastfeeding and allows for caregivers to make informed choices from available fortified complementary foods.

Beyond direct private-sector support through core business operations and investments, many individuals have argued that the sector has a much broader responsibility to ensure the health, nutrition, and welfare of their workforces and the larger communities that are dependent upon them. The creation of shared value approach is intended to be achieved through creation of economic value via company's policies and operating practices, with simultaneous advancement of the economic and social conditions in the communities in which it operates.¹⁴⁵ Results of this approach should be carefully monitored, and best practices underscored, through initiatives such as the Ethical Trading Initiative, which none of the leading food and beverage companies on the Access to Nutrition Index have signed up to.¹⁴⁶

On the basis of the suggested guidelines in the table, and of insights from other sectors,¹⁴⁷ several factors are key to maximising the private sector's potential contribution to nutrition status with minimisation of the risks to vulnerable populations: (1) understand the bottlenecks that the private sector could help overcome; (2) incentivise positive roles and the development of business models that support them; (3) regulate ongoing activities for potential risks to nutrition, with strong monitoring processes; (4) be transparent about the role of the private sector in the policy process and any potential conflicts of interest; and (5) independently evaluate public-private partnership activities and make the data and analyses publicly available.

Capacity and resources

Sequencing and prioritisation of nutrition actions

Ideally, all the links in the nutrition chain would be addressed at the same time; if this is not possible for resource, capacity, or political reasons, priorities need to be set. A frequently heard complaint from ministries of finance in high-burden countries is what to do first when it comes to stimulation of economic growth? In response to this question, a group of researchers at Harvard University and elsewhere have developed an economic growth diagnostics process.¹⁴⁸ The process combines evidence about the technical (what works here?), capacity (can we scale-up?) and, importantly, the political (are there any windows of opportunity for change?) aspects. The rationale is that sequencing matters and some issues can be highly rate-limiting. With nutrition, specific factors need to be in place for specific processes to take place. Similar nutrition diagnostic methods need to be developed to help prioritise nutrition plans of action.

Capacity for scale up

Several types of capacity are needed for effective scale up of priority nutrition interventions (panel 7¹⁴⁹). Insights can also be gained from the wider scientific literature of human resources in health systems research,¹¹⁹ including the need to agree on exactly what should be scaled up, consider lessons on scale-up from related areas, honestly document experiences, and understand that scaling up of interventions requires a scaling down of certainties, and inclusiveness and building of relations to sustain momentum. Finally, we suggest that the existence of poor quality training programmes and academic curricula in nutrition in regions of poor quality service delivery is not a coincidence.¹⁵⁰⁻¹⁵³ Many of these studies are from high-burden regions and they find the training and curricula to be outdated, impractical, and misaligned with local nutrition priorities. We reiterate the conclusion of the 2008 Series that much more needs to be done to strengthen strategic and operational capacity.^{71,154} Governments and donors should allocate more resources to establish a more sustainable foundation for nutrition implementation by training the next generation of

Panel 7: Key issues and core elements of nutrition-relevant capacity

Individual capacity: methods and skills

- Performance capacity: are the methods, money, and equipment, for example, available to do the job?
- Personal capacity: are staff sufficiently knowledgeable, skilled, and confident to perform properly? Do they need training, experience, or motivation? Are they deficient in technical, managerial, interpersonal, or specific role-related skills?

Organisational capacity: staff and infrastructure

- Workload capacity: do enough staff have broad enough skills to cope with the workload? Are job descriptions practicable? Is skill mix appropriate?
- Supervisory capacity: are reporting and monitoring systems in place? Are lines of accountability clear? Can supervisors physically monitor all staff? Are effective incentives and sanctions available?
- Facility capacity: are training centres, offices, and workshops big enough, with the right staff in sufficient numbers, to support the workload?
- Support service capacity: are there training institutions, supply organisations, building services, administrative staff, research facilities, quality control services?

Systemic capacity: structure, systems, and roles

- Structural capacity: are there decision-making forums or multistakeholder platforms at which intersectoral discussion of nutrition could take place, consensus is generated, collective decisions are made and recorded, and individuals called to account for non-performance?
- Systems capacity: do flows of information, money, and managerial decisions happen in a timely and effective manner? Are proper filing and information systems in use? Can private sector services be contracted as needed? Is there good communication with the community? Are links with non-governmental organisations sufficient?
- Role capacity: have individuals, teams, and committees been empowered to make decisions to ensure effective performance—eg, regarding schedules, money, and staff appointments?

implementers who in turn will be mentors for the generation after that.

Financial resources to support scale up

The second paper in this Series estimates that at least Int\$9.6 billion per year will be needed to scale up the 11 proven nutrition-specific interventions for the 34 countries that account for 90% of the burden of stunting.⁵ If this scale-up could be achieved, at least a quarter of present stunting cases could be addressed.⁷ Paper two suggests that roughly \$3 billion to \$4 billion of this total could come from external donors and, as SUN requires, would work together with established guidelines for aid effectiveness, including the importance of country ownership and the avoidance of aid dependency. Scaling up of nutrition programmes continues to be the place to start to reduce malnutrition; however, we need estimates of what it would take to make agriculture, social protection, education, and women's empowerment policies and programmes, for example, sufficiently nutrition-sensitive to have a further substantial effect on malnutrition rates. Paper three provides some suggestions about how to reallocate nutrition-sensitive programme resources to achieve win-win solutions. The extra resources needed to

Panel 8: Research priorities to build commitment and accelerate progress**Framing, generation, and communication of knowledge and evidence***Creation and sustaining of momentum for undernutrition reduction*

- What types of issue framing approaches and narratives yield attention to nutrition in different contexts?
- What advocacy and policy engagement strategies are most effective at galvanising political attention to nutrition?
- What types of evidence are most powerful for creation versus sustaining of national and subnational attention to nutrition?
- Can real-time monitoring of nutrition outcomes and coverage lead to more responsive nutrition actions and improved nutrition outcomes?

Conversion of momentum to effect on nutrition status

- How can nutrition interventions be mainstreamed and integrated into other sectors?
- What types of programme evaluations and operations research are crucial to enabling programmatic actions at different stages in the life of nutrition investments?
- What types of learning mechanisms best enable inclusive stakeholder engagement with evidence?
- What types of stakeholder engagement approaches can enhance the demand for evidence of effect?

Political economy and governance of stakeholders, ideas, and interests*Creation and sustaining of momentum for undernutrition reduction*

- What strategies are most effective at enabling multisectoral coordination and strategic coherence for nutrition?
- Which accountability strategies are most effective at mobilising commitment at different levels of government and society (eg, indices, scorecards, social audits, community monitoring)?
- In what ways can the private sector be regulated to protect and support exclusive breastfeeding?

Conversion of momentum to effect on nutrition status

- What aspects of decentralisation are most crucial for enabling vertical translation of national guidance to programmatic action?
- What types of roles can (and should) the private sector and civil society have in supporting service delivery and scaling up?

- When has private sector involvement enhanced nutrition status and how?
- Do effective accountability mechanisms contribute to improved nutrition outcomes?
- What are effective incentives to help mainstream nutrition into potentially nutrition-sensitive sectors?

Capacity (individual, organisational, systemic) and financial resources*Creation and sustaining of momentum for undernutrition reduction*

- What are the characteristics of nutrition policy champions? What effect do university curricula and leadership training investments have in creation of nutrition leaders?
- What types of institutional investments and capacity building activities yield the best systemic and strategic capacity for nutrition within national and subnational organisations?
- How should the resources allocated to nutrition-sensitive programmes be assigned to nutrition improvement?
- To what extent can research on the costing of interventions and the tracing of financial flows mobilise additional resources for nutrition and improve the effectiveness of resource allocation?
- What methods are effective in helping to prioritise and sequence nutrition actions?

Conversion of momentum to effect on nutrition status

- What institutional and front line capacities are most important to enable scale-up of different types of direct nutrition interventions through community-based programmes and the health sector?
- How can nutrition-sensitive sectors operationalise their interventions to achieve nutrition results for women and children?
- Which new forms of resource mobilisation show the greatest promise for improvement of nutrition status?
- Does prioritising and sequencing of simple nutrition actions (eg, vitamin A supplementation, micronutrients, treatment of severe acute malnutrition) create enabling conditions for closing gaps on more complex interventions (behaviour change interventions for infant and young-child feeding?).

incentivise such reallocations might well be modest, but more experience and evidence are needed to identify the surplus requirement. The allocation of scarce public resources between nutrition and other activities (and indeed among nutrition activities) will be guided by political and technical considerations. Nutrition tends to have no institutional champion, hence the emphasis within SUN on institutional mechanisms to address this issue, both formally (via multisector platforms) and informally via the framing around movements. Other mechanisms for promotion and protection of nutrition spending exist, such as the example in Peru of embedding of nutrition within electoral commitments (appendix,

and more analysis is needed about the variety and effectiveness of these mechanisms.

We previously discussed private sector possibilities for additional resources. For public sources, high-burden countries together with donors and multilateral organisations have a responsibility to increase allocations to nutrition-specific and nutrition-sensitive programmes. To do this within an official development assistance budget that has peaked, albeit with increasing tax revenues from high-burden countries,¹⁵⁵ will be politically challenging, hence the need to build leadership, commitment, and accountability at national and international levels.

However, the gap is unlikely to be closed from these sources. Innovation is needed across all sectors to leverage private-sector and public-sector resources and to generate additional public funding. The nutrition sector can draw on several innovative ideas from other sectors,¹⁵⁶ including advance market contracts to promote investment, market levies, and taxes, on either unhealthy externalities or external sectors, as in the airline ticket levy by UNITAID¹⁵⁷ or the mining levy funding health in Zambia. Nutritional impact bonds are another option, entailing the creation of a social impact partnership fund by private investors, which receives public funds if key service delivery targets are met. In this way, public funds catalyse and leverage private investment for which the service providers bear the risk, but also stand to generate additional revenue. Key to the success of these schemes is the collection of credible metrics. More research and experimentation is desperately needed in this area.

Looking ahead

In the past 5 years, the nutrition community has made major progress, but it should be judged against the effect emerging in the next 5 years and beyond. Momentum needs to be sustained and converted into lasting effects. SUN will reach its 1000th day when this *Lancet* Series is launched in June, 2013. Since SUN's own launch in September 2010, the movement has substantially elevated and energised the discourse on nutrition and has changed institutional arrangements. In some countries, the movement is beginning to catalyse resource mobilisation and programme alignment. Emphasis should now escalate to action, translating commitment into results on the ground. SUN needs to build on its commitment to be country led and results driven. To enable this development, SUN should harness and catalyse national leadership, capacity and resources, politics, and knowledge generation. Documented SUN proof-of-concept success stories are also needed to galvanise further action.

One clear overarching priority is the need to strengthen strategic and operational capacity to scale up nutrition interventions and embed nutrition considerations in other sectoral actions. This point was emphasised in the 2008 *Lancet* series and remains the case today.¹⁵⁶ National and global resources need to be invested in the long term to support capacity development, at individual, organisational, and systemic levels. Leadership is needed to galvanise and spearhead action, and this again will need to be seeded, funded, and nurtured. For too long the issue of capacity has been recognised but overlooked—a convenient excuse for failed plans. It is easy to neglect such issues when constructing business plans to support nutrition strategies and yet without sufficient capacity of the right type at the right level, plans become hollow wish lists.

Fairly silent to date, the nutrition community needs to be a lot more engaged in the post-2015 process to ensure

that interest in nutrition is locked into the post-2015 development settlement (panel 4). If nutrition is to be embedded into broader development processes, the nutrition community needs to actively forge alliances with those for whom malnutrition reduction is not a top priority and to do this in a politically aware manner. We have drawn on a range of evidence in this report, both academic and from the field. The academic evidence we used is valuable, but much of it is from areas outside of nutrition. We call for more research of what defines enabling environments for nutrition. We also call for more systematic ways to capture and share the learning from policy and programme operations. Panel 8 shows priority areas for research.

Finally, the core problem itself is changing as the burden of disease caused by poor nutrition continues to shift from undernutrition to a double burden of undernutrition and overweight and obesity.⁷ Future *Lancet* series on nutrition will have to pay much greater attention to this double burden than we have. But the disease burden attributable to child underweight remains substantial in many countries, in other words, there is an enormous unfinished agenda.

Contributors

All authors contributed to the conceptualisation and structuring of the paper, and reviewed all drafts. SG led overall development and finalisation of the paper and appendix, and coordinated inputs of coauthors and contributors. He led on the enabling environments section, Scaling Up Nutrition (SUN) electronic consultation, and case studies; prepared the first draft of the conceptual framework; wrote the sections about capacity, civil society, the abstract, and introductory and closing sections; contributed to other sections of the paper; and prepared and submitted the final draft. LH first proposed to focus the paper on the politics of nutrition and led on drafting the sections about the wider context, financial resources, horizontal and vertical coordination, the private sector, the nutrition commitment index, and the post-2015 discussions; and had responsibility for construction of the first complete draft of the paper. VM prepared background sections on private sector, SUN, civil society, and financing, which were used in the development of those sections, and made contributions to each draft. PM wrote sections about implementation research and translation of commitment to action, and provided written inputs to the private sector and enabling environment sections. NN prepared the accountability and global governments sections and the Peru case study, contributed to the enabling environments section and coedited one of the first full drafts. Four of the authors are researchers and one (VM) is a practitioner. The researchers combine expertise in nutrition, economics, politics, sociology, and anthropology. All authors are embedded in the global policy community and all are very familiar with one or more country policy communities. All authors operate at the interface between policy, practice, and research and three have done so since the 1980s. This is the basis for their collective knowledge.

Maternal and Child Nutrition Study Group

Robert E Black (Johns Hopkins Bloomberg School of Public Health, USA), Harold Alderman (International Food Policy Research Institute, USA), Zulfiqar A Bhutta (Aga Khan University, Pakistan), Stuart Gillespie (International Food Policy Research Institute, USA), Lawrence Haddad (Institute of Development Studies, UK), Susan Horton (University of Waterloo, Canada), Anna Lartey (University of Ghana, Ghana), Venkatesh Mannar (The Micronutrient Initiative, Canada), Marie Ruel (International Food Policy Research Institute, USA), Cesar Victora (Universidade Federal de Pelotas, Brazil), Susan Walker (The University of the West Indies, Jamaica), Patrick Webb (Tufts University, USA).

Series Advisory Committee

Marc Van Ameringen (Global Alliance for Improved Nutrition, Switzerland), Mandana Arabi (New York Academy of Sciences, USA), Shawn Baker (Helen Keller International, USA), Martin Bloem (United Nations World Food Programme, Italy), Francesco Branca (WHO, Switzerland), Leslie Elder (The World Bank, USA), Erin McLean (Canadian International Development Agency, Canada), Carlos Monteiro (University of São Paulo, Brazil), Robert Mwandime (Makerere School of Public Health, Uganda), Ellen Piwoz (Bill & Melinda Gates Foundation, USA), Werner Schultink (UNICEF, USA), Lucy Sullivan (1000 Days, USA), Anna Taylor (Department for International Development, UK), Derek Yach (The Vitality Group, USA). The Advisory Committee provided advice in a meeting with Series Coordinators for each paper at the beginning of the process to prepare the Series and in a meeting to review and critique the draft reports.

Conflicts of interest

REB serves on the Boards of the Micronutrient Initiative, Vitamin Angels, the Child Health and Nutrition Research Initiative, and the Nestlé Creating Shared Value Advisory Committee. VM serves on the Nestlé Creating Shared Value Advisory Committee. The other authors declare that they have no conflicts of interest. As corresponding author, Stuart Gillespie states that he had full access to all data and final responsibility for the decision to submit for publication.

Acknowledgments

Funding for the preparation of the Series was provided to the Johns Hopkins Bloomberg School of Public Health through a grant from the Bill & Melinda Gates Foundation. The sponsor had no role in the analysis and interpretation of the evidence or in writing the paper and the decision to submit for publication. We thank the contributors for their specified contributions, and the Bill & Melinda Gates Foundation for financial support for the preparation of this paper. SG received some funding from the Transform Nutrition Research Programme Consortium with UK aid from the UK Government. The development of the Nutrition Commitment Index was made possible by support from UK Aid and Irish Aid. The views expressed in this paper do not necessarily reflect the UK Government's official policies. Representatives of the Bill & Melinda Gates Foundation and the UK Department for International Development took part in series preparation meetings. Neither donor had a role in conceptualisation, data collection, analysis, or drafting of the paper.

Many individuals have contributed to this paper beyond the coauthors. We thank Jody Harris for the literature review of nutrition policy processes and Jody Harris and Andrew Kennedy (both International Food Policy Research Institute [IFPRI]) for support in the production of the report; Tom Barker, Jessica Meeker, Karine Gatellier, and Adrian Bannister (Institute of Development Studies [IDS]) for organising the online SUN discussions in six countries; Mara van den Bold and Andrew Kennedy (IFPRI) for preparation of daily summaries of these discussions, and for other background work on SUN (appendix); Elise Wach and Dolf te Lintelo (IDS) for panels on nutrition champions and Nutrition Commitment Index; Victor Aguayo (UNICEF India) and Kavita Singh (IFPRI New Delhi) for the Maharashtra case study, Andrew Kennedy for the Malawi case study, and Andres Mejia Acosta (IDS) for the Peru case study; and Victoria Sibson (Save the Children UK) for contributions on nutrition crises.

References

- Di Ciommo M. The aid financing landscape for nutrition. Bristol, UK: Development Initiatives, 2013.
- G-8. Camp David accountability report: actions, approach and results. Camp David, MD: USAID, 2012.
- Horton S, Alderman H, Rivera J. Hunger and malnutrition. Copenhagen: Copenhagen Consensus Center, 2008.
- Scaling Up Nutrition (SUN). Scaling up nutrition: a framework for action. Washington, DC: UNSCN, 2010.
- Bhutta ZA, Das JK, Rizvi A, et al. *The Lancet* Nutrition Interventions Review Group, and the Maternal and Child Nutrition Study Group. Evidence based interventions for improvement of maternal and child nutrition: what can be done and at what cost? *Lancet* 2013; published online June 6. [http://dx.doi.org/10.1016/S0140-6736\(13\)60996-4](http://dx.doi.org/10.1016/S0140-6736(13)60996-4).
- Hoddinott J, Alderman H, Behrman JR, Haddad L, Horton S. The economic rationale for investing in stunting reduction. Washington, DC: IFPRI, 2013.
- Ruel M, Alderman H, and the Maternal and Child Nutrition Study Group. Nutrition-sensitive interventions and programmes. *Lancet* 2013; published online June 6. [http://dx.doi.org/10.1016/S0140-6736\(13\)60843-0](http://dx.doi.org/10.1016/S0140-6736(13)60843-0).
- Haddad L. How can we build an enabling political environment to fight undernutrition? *Eur J Dev Res* 2012; **25**: 13–20.
- Lim SS, Vos T, Flaxman AD, et al. A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990–2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet* 2012; **471**: 2224–60.
- Pelletier DL, Porter CM, Aarons GA, Wuehler SE, Neufeld LM. Expanding the frontiers of nutrition research: new questions, new methods, and new approaches. *Adv Nutr* 2012; **4**: 92–114.
- Haddad L, Alderman H, Appleton S, Song L, Yohannes Y. Reducing child malnutrition: how far does income growth take us? *World Bank Econ Rev* 2003; **17**: 107–31.
- Headey D. Developmental drivers of nutritional change: a cross-country analysis. *World Dev* 2013; **42**: 76–88.
- Masset E, Haddad L. Income growth and nutrition status: a critical review of the estimated relationship. Brighton, UK: Institute of Development Studies, 2013.
- Headey D. Pro-nutrition economic growth: what is it, and how do I achieve it? Washington, DC: IFPRI, 2011.
- Benson T. Improving nutrition as a development priority: addressing undernutrition in national policy processes in sub-saharan africa. Washington, DC: IFPRI, 2008.
- Garrett, JL. Natalicchio M. Working multisectorally in nutrition: principles, practices, and case studies. Washington, DC: IFPRI, 2010.
- Gillespie S, McLachlan M, Shrimpton R, eds. Combating undernutrition: time to act. Washington, DC: World Bank, 2003.
- Hill R, Gonzalez W, Pelletier DL. The formulation of consensus on nutrition policy: policy actors' perspectives on good process. *Food Nutr Bull* 2011; **32**: 92S–104S.
- Hoey L, Pelletier DL. The management of conflict in nutrition policy formulation: choosing growth-monitoring indicators in the context of dual burden. *Food Nutr Bull* 2011; **32**: S82–91.
- Hoey L, Pelletier DL. Bolivia's multisectoral Zero Malnutrition program: insights on commitment, collaboration, and capacities. *Food Nutr Bull* 2011; **32**: 70S–81S.
- Mejia Acosta A, Fanzo J. Fighting maternal and child malnutrition: analysing the political and institutional determinants of delivering a national multisectoral response in six countries. A synthesis paper. Brighton, UK: Institute of Development Studies, 2012.
- Natalicchio M, Garrett J, Mulder-Sibanda M, Ndegwa S, Voorbraak D. Carrots and sticks: the political economy of nutrition policy reforms. HNP Discussion Paper. Washington, DC: IFPRI and The World Bank, 2009.
- Pelletier DL, Frongillo EA, Gervais S, et al. Nutrition agenda setting, policy formulation and implementation: lessons from the Mainstreaming Nutrition Initiative. *Health Policy Plan* 2012; **27**: 19–31.
- Clark TW. The policy process: a practical guide for natural resources professionals. New Haven, CT: Yale University Press, 2002.
- Kingdon JW. Agendas, alternatives, and public policies. New York, NY: Harper Collins, 1995.
- Shiffman J, Smith S. Generation of political priority for global health initiatives: a framework and case study of maternal mortality. *Lancet* 2007; **370**: 1370–79.
- Lapping K, Frongillo EA, Studdert LJ, Menon P, Coates J, Webb P. Prospective analysis of the development of the national nutrition agenda in Vietnam from 2006 to 2008. *Health Policy Plan* 2012; **27**: 32–41.
- Morris SS. Effective international action against undernutrition: why has it proven so difficult and what can be done to accelerate progress? *Lancet* 2008; **371**: 608–21.
- Subramanyam MA, Kawachi I, Berkman LF, Subramanian SV. Is economic growth associated with reduction in child undernutrition in India? *PLOS Med* 2011; **8**: e1000424.

- 30 Mander H. Food from the courts: the Indian experience. *IDS Bull* 2012; **43**: 15–24.
- 31 Swaminathan M. Undernutrition in infants and young children in India: a leadership agenda for action. *IDS Bull* 2009; **40**: 103–10.
- 32 Measure DHS, USAID. StatCompiler. <http://www.statcompiler.com> (accessed March 30, 2013).
- 33 The World Food Prize. 2011 World Food Prize honors former Presidents of Ghana, Brazil. June 21, 2011. <http://www.worldfoodprize.org/en/press/news/index.cfm?action=display&newsID=13371> (accessed March 30, 2013).
- 34 National Development Planning Commission, Government of Ghana, UNDP Ghana. Ghana millennium development goals report. Ghana: UNDP, 2010.
- 35 Khan NC, Tuyen ID, Ngoc TX, Duong PH, Khoi HH. Reduction in childhood malnutrition in Vietnam from 1990 to 2004. *Asia Pac J Clin Nutr* 2007; **16**: 274–278.
- 36 Ha do TP, Feskens EJ, Deurenberg P, Mai LB, Khan NC, Kok FJ. Nation-wide shifts in the double burden of overweight and underweight in Vietnamese adults in 2000 and 2005: two national nutrition surveys. *BMC Public Health* 2011; **11**: 62.
- 37 Campbell AA, Akhter N, Sun K, et al. Relationship of homestead food production with night blindness among children below 5 years of age in Bangladesh. *Public Health Nutr* 2011; **14**: 1627–31.
- 38 Thorne-Lyman AL, Valpiani N, Sun K, et al. Household dietary diversity and food expenditures are closely linked in rural Bangladesh, increasing the risk of malnutrition due to the financial crisis. *J Nutr* 2010; **140**: 182S–88S.
- 39 Berg M, Wariero J, Modi V. Every child counts: the use of SMS in Kenya to support the community based management of acute malnutrition and malaria in children under five. New York, NY: Columbia University–Earth Institute, 2009.
- 40 Blaschke S, Bokenkamp K, Cosmaciuc R, Denby M, Hailu B, Short, R. Using mobile phones to improve child nutrition surveillance in Malawi. Brooklyn, NY: UNICEF Malawi, 2009.
- 41 Hoddinott J, Maluccio JA, Behrman JR, Flores R, Martorell R. Effect of a nutrition intervention during early childhood on economic productivity in Guatemalan adults. *Lancet* 2008; **371**: 411–16.
- 42 Maluccio JA, Hoddinott J, Behrman JR, Martorell R, Quisumbing AR, Stein AD. The impact of improving nutrition during early childhood on education among Guatemalan adults. *Econ J* 2009; **119**: 734–63.
- 43 Victora CG, Adair L, Fall C, et al. Maternal and child undernutrition: consequences for adult health and human capital. *Lancet* 2008; **371**: 340–57.
- 44 Martorell R, Horta BL, Adair LS, et al. Weight gain in the first two years of life is an important predictor of schooling outcomes in pooled analyses from five birth cohorts from low- and middle-income countries. *J Nutr* 2010; **140**: 348–54.
- 45 Bloom DE, Canning D. Demographics and development policy. Cambridge, MA: Harvard University, 2011.
- 46 Black RE, Victora CG, Walker SP, et al, and the Maternal and Child Nutrition Study Group. Maternal and child undernutrition and overweight in low-income and middle-income countries. *Lancet* 2013; published online June 6. [http://dx.doi.org/10.1016/S0140-6736\(13\)60937-X](http://dx.doi.org/10.1016/S0140-6736(13)60937-X).
- 47 Haddad L. How should nutrition be positioned in the post-2015 agenda? *Food Policy* (in press).
- 48 Field JO. Multisectoral nutrition planning: a post-mortem. *Food Policy* 1987; **12**: 15–28.
- 49 Haddad L, Mejia Acosta A, Fanzo J. Accelerating reductions in undernutrition: what can nutrition governance tell us? Brighton, UK: IDS, 2012.
- 50 World Bank. World development report 2004: making services work for poor people. Washington, DC: World Bank, 2003.
- 51 Reich MR, Balarajan Y. Political economy analysis for food and nutrition security. HNP Discussion Paper. Washington, DC: World Bank and SAFANSI, 2012.
- 52 Ravallion M. Mashup indices of development. Washington, DC: World Bank, 2010.
- 53 IFPRI, Welthungerhilfe, Concern Worldwide. The challenge of hunger: ensuring sustainable food security under land, water, and energy stresses. Washington, DC: Global Hunger Index, 2012.
- 54 Masset E. A review of hunger indices and methods to monitor country commitment to fighting hunger. *Food Policy* 2011; **36**: S102–08.
- 55 Access to Nutrition Index. <http://www.accessnutrition.org/> (accessed March 30, 2013).
- 56 Haddad L, Lindstrom J, Pinto Y. The sorry state of M&E in agriculture: can people-centred approaches help? *IDS Bulletin* 2010; **41**: 6–25.
- 57 Swain B, Sen PD. Bridging the malnutrition gap with social audits and community participation. *IDS Bulletin* 2009; **40**: 95–102.
- 58 Berlan D, Shiffman J. Holding health providers in developing countries accountable to consumers: a synthesis of relevant scholarship. *Health Policy Plan* 2012; **27**: 271–80.
- 59 Molyneux S, Atela M, Angwenyi V, Goodman C. Community accountability at peripheral health facilities: a review of the empirical literature and development of a conceptual framework. *Health Policy Plan* 2012; **27**: 541–54.
- 60 Bjorkman M, Svensson J. Power to the people: evidence from a randomized field experiment on community-based monitoring in Uganda. *Q J Econ* 2009; **124**: 735–69.
- 61 Gaventa J, Barrett G. Mapping the outcomes of citizen engagement. *World Dev* 2012; **40**: 2399–410.
- 62 Segrè J, Winnard K, Abrha TH, Abebe Y, Shilane D, Lapping K. Willingness to pay for lipid-based nutrient supplements for young children in four urban sites of Ethiopia. *Mat Child Nutr* 2013; published online Dec 13, 2012. DOI:10.1111/mcn.12022.
- 63 Prahalad CK. The fortune at the bottom of the pyramid: eradicating poverty through profits. New Jersey: Wharton School Publishing, 2010.
- 64 Nelson J. Business as a partner in overcoming malnutrition: an agenda for action. Washington, DC: GAIN, 2006.
- 65 Reardon T, Henson S, Gulati A. Links between supermarkets and food prices, diet diversity and food safety in developing countries. In: Hawkes C, Blouin C, Henson S, Drager N, Dube L, eds. Trade, food, diet and health: perspectives and policy options. Oxford, UK: Wiley-Blackwell, 2010: 111–30.
- 66 Dangour AD, Diaz Z, Sullivan LM. Building global advocacy for nutrition: a review of the European and US landscapes. *Food Nutr Bull* 2012; **33**: 92–98.
- 67 McGregor A, Burns D, Waldman L, Watson N, Williamson R. The Bellagio Initiative: the future of philanthropy and development in the pursuit of human wellbeing. Brighton, UK: Institute of Development Studies, 2012.
- 68 Free C, Phillips G, Watson L, et al. The effectiveness of mobile-health technologies to improve health care service delivery processes: a systematic review and meta-analysis. *PLOS Med* 2013; **10**: e1001362.
- 69 Brinkerhoff DW, Brinkerhoff JM. Public–private partnerships: perspectives on purposes, publicness, and good governance. *Public Admin Dev* 2011; **31**: 2–14.
- 70 Scaling Up Nutrition. Business Network. 2012. <http://scalingupnutrition.org/about/the-global-movement/business-network> (accessed March 30, 2013).
- 71 Bryce J, Coitinho D, Darnton-Hill I, Pelletier D, Pinstrup-Andersen P. Maternal and child undernutrition: effective action at national level. *Lancet* 2008; **371**: 510–26.
- 72 Moodie R, Stuckler D, Monteiro C, et al. Profits and pandemics: prevention of harmful effects of tobacco, alcohol, and ultra-processed food and drink industries. *Lancet* 2013; **381**: 670–79.
- 73 Rao V. Law on infant foods inhibits the marketing of complementary foods for infants, furthering undernutrition in India. *BMJ* 2012; **345**: e8131.
- 74 Save the Children UK. Superfood for babies: how overcoming barriers to breastfeeding will save children's lives. London, UK: Save the Children, 2013.
- 75 International Baby Food Action Network. The scaling up nutrition initiative: IBFAN's concern about the role of businesses. IBFAN, 2012.
- 76 Sablah M, Klopp J, Steinberg D, Baker S. Private-public partnerships drive one solution to vitamin and mineral deficiencies: "fortify west Africa". *SCN News* 2011; **39**: 40–44.
- 77 Bloom G, Kanjilal B, Lucas H, Peters DH. Transforming health markets in Asia and Africa: Improving quality and access for the poor. New York, NY: Routledge, 2013.
- 78 Harding A. Partnerships with the private sector in health: what the international community can do to strengthen health systems in developing countries. Washington, DC: Center for Global Development, 2009.

- 79 Patouillard E, Goodman CA, Hanson KG, Mills AJ. Can working with the private for-profit sector improve utilization of quality health services by the poor? a systematic review of the literature. *Int J Equity Health* 2007; 6: 17.
- 80 Gillespie S, Mason J, Martorell, R. How nutrition improves. Geneva: World Health Organization, 1996.
- 81 African Nutrition Leadership Programme. <http://www.africannutritionleadership.org/> (accessed March 30, 2013).
- 82 Heaver R. Strengthening country commitment to human development, lessons from nutrition. Directions in development. Washington, DC: The World Bank, 2005.
- 83 Mintrom M. Policy entrepreneurs and the diffusion of innovation. *Am J Polit Sci* 1997; 41: 738–70.
- 84 Foster-Fishman P, Nowell B, Yang H. Putting the system back into systems change: a framework for understanding and changing organizational and community system. *Am J Community Psych* 2007; 39: 196–215.
- 85 Brown BC. Conscious leadership for sustainability: how leaders with a late-stage action logic design and engage in sustainability initiatives. Santa Barbara, CA: Fielding Graduate University, 2011.
- 86 Pelletier D. Research and policy directions. In: Semba RD, Bloem W, eds. Nutrition and health in developing countries. Totowa, NJ: Humana Press, 2001: 523–50.
- 87 Pelletier D. A framework for improved strategies. In: Gillespie S, McLachlan M, Shrimpton R, eds. Combating undernutrition: time to act. Washington, DC: World Bank, 2003.
- 88 Williams B, Hummelbrunner R. Systems concepts in action: a practitioner's toolkit. Stanford, CA: Stanford University Press, 2010.
- 89 Benford R, Snow D. Framing processes and social movements: an overview and assessment. *Ann Rev Soc* 2000; 26: 611–39.
- 90 Jordan T. Skillful engagement with wicked Issues: a framework for analyzing the meaning-making structures of societal change agents. *Integral Rev* 2011; 7: 47–91.
- 91 Hughes R, Shrimpton R, Recine E, Margetts B. A competency framework for global public health nutrition workforce development: a background paper. World Public Health Nutrition Association, 2011.
- 92 Horton S, Shekar M. Scaling up nutrition: what will it cost? Washington, DC: World Bank, 2010.
- 93 Mutuma S, Fremont E, Adebayo A. Aid for nutrition: can investments to scale up nutrition actions be accurately tracked? London: ACF International, 2012.
- 94 Development Initiatives. Nutrition advocacy landscaping in Europe: an analysis of donor commitments. London: Development Initiatives, 2011.
- 95 Hoddinott J, Rosegrant M, Torero M. Hunger and malnutrition: investments to reduce hunger and undernutrition. Washington, DC: Copenhagen Consensus, 2012.
- 96 Adair LS, Fall CHD, Osmond C, et al, for the COHORTS group. Associations of linear growth and relative weight gain during early life with adult health and human capital in countries of low and middle income: findings from five birth cohort studies. *Lancet* 2013; published online March 28. [http://dx.doi.org/10.1016/S0140-6736\(13\)60103-8](http://dx.doi.org/10.1016/S0140-6736(13)60103-8).
- 97 Shekar M. Delivery sciences in nutrition. *Lancet* 2008; 371: 1751.
- 98 Leroy JL, Menon P. From efficacy to public health impact: a call for research on program delivery and utilization in nutrition. *J Nutr* 2008; 138: 628–29.
- 99 Countdown to 2015: maternal, newborn, and child survival. Building a future for women and children: the 2012 report. Washington, DC: World Health Organization and UNICEF, 2012.
- 100 Habicht JP, Pelto GH, Lapp J. Methodologies to evaluate the impact of large scale nutrition programs. Washington, DC: World Bank, 2009.
- 101 Marsh DR, Alegre JC, Waltensperger KZ. A results framework serves both program design and delivery science. *J Nutr* 2008; 138: 630–33.
- 102 The New York Academy of Sciences. Global research agenda for nutrition sciences. March 8, 2013. <http://www.nyas.org/Publications/Ebriefings/Detail.aspx?cid=38eb8a81-ed18-49f4-b9d1-0a5d887e712c> (accessed March 30, 2013).
- 103 Rasheed S, Haider R, Hassan N, et al. Why does nutrition deteriorate rapidly among children under 2 years of age? Using qualitative methods to understand community perspectives on complementary feeding practices in Bangladesh. *Food Nutr Bull* 2011; 32: 192–200.
- 104 Paul KH, Muti M, Chasekwa B, Mbuya MN, Madzima RC, Humphrey JH, Stoltzfus RJ. Complementary feeding messages that target cultural barriers enhance both the use of lipid-based nutrient supplements and underlying feeding practices to improve infant diets in rural Zimbabwe. *Mat Child Nutr* 2012; 8: 225–38.
- 105 Pelto GH, Armar-Klemesu M. Balancing nurturance, cost and time: complementary feeding in Accra, Ghana. *Mat Child Nutr* 2011; 7: 66–81.
- 106 Pelto GH, Armar-Klemesu M, Siekmann J, Schofield D. The focused ethnographic study assessing the behavioral and local market environment for improving the diets of infants and young children 6 to 23 months old and its use in three countries. *Mat Child Nutr* 2013; 9: 35–46.
- 107 Suchdev PS, Ruth L, Obure A, et al. Monitoring the marketing, distribution, and use of Sprinkles micronutrient powders in rural western Kenya. *Food Nutr Bull* 2010; 31: S168–78.
- 108 Loechl CU, Menon P, Arimond M, et al. Using programme theory to assess the feasibility of delivering micronutrient Sprinkles through a food-assisted maternal and child health and nutrition programme in rural Haiti. *Mat Child Nutr* 2009; 5: 33–48.
- 109 Bonvecchio A, Pelto GH, Escalante E, et al. Maternal knowledge and use of a micronutrient supplement was improved with a programmatically feasible intervention in Mexico. *J Nutr* 2007; 137: 440–46.
- 110 Olney DK, Talukder A, Iannotti LL, Ruel MT, Quinn V. Assessing impact and impact pathways of a homestead food production program on household and child nutrition in Cambodia. *Food Nutr Bull* 2009; 30: 355–69.
- 111 Pelto GH, Santos I, Goncalves H, Victora C, Martines J, Habicht JP. Nutrition counseling training changes physician behavior and improves caregiver knowledge acquisition. *J Nutr* 2004; 134: 357–62.
- 112 Puett C, Sadler K, Alderman H, Coates J, Fiedler JL, Myatt M. Cost-effectiveness of the community-based management of severe acute malnutrition by community health workers in southern Bangladesh. *Health Policy Plan* 2012; published online Aug 9. DOI:10.1093/heapol/czs070.
- 113 Fiedler JL, Mubanga F, Siamusantu W, Musonda M, Kabwe KF, Zul C. Child health week in Zambia: costs, efficiency, coverage and a reassessment of need. *Health Policy Plan* 2012; published online Dec 14. DOI:10.1093/heapol/czs129.
- 114 Fiedler JL, Villalobos CA, De Mattos AC. An activity-based cost analysis of the Honduras community-based, integrated child care (AIN-C) programme. *Health Policy Plan* 2008; 23: 408–27.
- 115 Frongillo EA, Rubinstein-Gillis S, Horan C, Frongillo D, Menon P. Delivering for impact: a systematic review of strategies used for delivering critical public health interventions. Report prepared for the World Health Organization, Department of Adolescent and Child Health. Geneva, 2007.
- 116 Olney DK, Rawat R, Ruel MT. Identifying potential programs and platforms to deliver multiple micronutrient interventions. *J Nutr* 2012; 142: 178S–85S.
- 117 Perez-Escamilla R, Curry L, Minhas D, Taylor L, Bradley E. Scaling up of breastfeeding promotion programs in low- and middle-income countries: the “breastfeeding gear” model. *Adv Nutr* 2012; 3: 790–800.
- 118 Cooley L, Kohl R. Scaling up—from vision to large-scale change: a management framework for practitioners. Washington, DC: Management Systems International, 2006.
- 119 Cash RA, Chowdhury MR, Smith GB, Ahmed RA. From one to many: scaling up health programs in low income countries. Dhaka: The University Press, 2011.
- 120 McCannon CJ, Berwick DM, Massoud MR. The science of large-scale change in global health. *JAMA* 2007; 298: 1937–39.
- 121 Mills A, Hanson K. Expanding access to health interventions in low and middle-income countries: constraints and opportunities for scaling-up. *J Int Dev* 2003; 15: 1–131.
- 122 ExpandNet: scaling up health innovations. Scaling-up literature. <http://www.expandnet.net/literature.htm> (accessed March 30, 2013).
- 123 WHO. Nutrition Landscape Information System (NLIS). <http://www.who.int/nutrition/nlis/en/> (accessed March 30, 2013).
- 124 Gilligan D, Hoddinott J, Taffesse AS. The impact of Ethiopia's productive safety net programme and its linkages. *J Dev Stud* 2009; 45: 1684–706.

- 125 Bryce J, Victora CG. Ten methodological lessons from the multi-country evaluation of integrated Management of Childhood Illness. *Health Policy Plan* 2005; **20** (suppl 1): i94–105.
- 126 Victora CG, Black RE, Boerma JT, Bryce J. Measuring impact in the Millennium Development Goal era and beyond: a new approach to large-scale effectiveness evaluations. *Lancet* 2011; **377**: 85–95.
- 127 Masset E, Haddad L, Cornelius A, Izara-Castro J. Effectiveness of agricultural interventions that aim to improve nutritional status of children: systematic review. *BMJ* 2012; **344**: d8222.
- 128 Stoltzfus RJ. Research needed to strengthen science and programs for the control of iron deficiency and its consequences in young children. *J Nutr* 2008; **138**: 2542–46.
- 129 White H. Theory-based impact evaluation: principles and practice. *J Dev Effect* 2009; **1**: 271–84.
- 130 Jennings S. Time's bitter flood: trends in the numbers of reported natural disasters. Oxford, UK: Oxfam, 2011.
- 131 World Bank. World development report 2011: conflict, security and development. Washington, DC: World Bank 2011.
- 132 Hall A, Blankson B, Shoham J. The impact and effectiveness of emergency nutrition and nutrition-related interventions: a review of published evidence 2004–2010. Oxford, UK: Emergency Nutrition Network, 2011.
- 133 De Savigny D, Adam T. Systems thinking for health systems strengthening. Alliance for Health Policy and Systems Research. Geneva: World Health Organization, 2009.
- 134 Dolan C, Mejia Acosta A, Shoham J. A synthesis of lessons: government experiences of scale-up of community-based management of acute malnutrition (CMAM). Oxford, UK: Emergency Nutrition Network, 2012.
- 135 Bossert TJ, Mitchell AD. Health sector decentralization and local decision-making: decision space, institutional capacities and accountability in Pakistan. *Soc Sci Med* 2011; **72**: 39–48.
- 136 Harriss J, Kohli N. Notes on the differing 'states' of child undernutrition in rural India. *IDS Bull* 2009; **40**: 9–15.
- 137 Fixsen DJ, Naom SF, Blase KA., Friedman RF, Wallace F, Wallace P. Implementation research: a synthesis of the literature. Tampa, FL: Florida Mental Health Institute, National Implementation Research Network, 2005.
- 138 Levitt EJ, Pelletier D, Pell AN. Revisiting the UNICEF malnutrition framework to foster agriculture and health sector collaboration to reduce malnutrition: A comparison of stakeholder priorities for action in Afghanistan. *Food Policy* 2009; **34**: 156–65.
- 139 Ved R, Menon P. Analyzing inter-sectoral convergence to improve child undernutrition in India: development and application of a framework to examine policies in agriculture, health and nutrition. IFPRI Discussion Paper 1208. Washington, DC: IFPRI, 2012.
- 140 Hawkes C, Ruel MT. Value chains for nutrition. In: Fan S, Pandya-Lorch R, eds. Reshaping agriculture for nutrition and health. Washington, DC: International Food Policy Research Institute, 2012: 73–81.
- 141 GAIN: Global Alliance for Improved Nutrition. <http://www.gainhealth.org/> (accessed March 30, 2013).
- 142 Micronutrient Initiative. www.micronutrient.org/ (accessed March 30, 2013).
- 143 Sun J, Yaohua D, Shuaiming Z, et al. Implementation of a programme to market a complementary food supplement (Ying Yang Bao) and impacts on anaemia and feeding practices in Shanxi, China. *Mat Child Nutr* 2011; **7**: 96–111.
- 144 Suchdev PS, Ruth LJ, Woodruff BA, et al. Selling Sprinkles micronutrient powder reduces anemia, iron deficiency, and vitamin A deficiency in young children in Western Kenya: a cluster-randomized controlled trial. *Am J Clin Nutr* 2012; **95**: 1223–30.
- 145 Porter ME, Kramer MR. Creating shared value. *Harvard Bus Rev* 2011 <http://hbr.org/2011/01/the-big-idea-creating-shared-value> (accessed May 16, 2013).
- 146 Ethical Trading Initiative. www.ethicaltrade.org/about-eti/our-members (accessed March 30, 2013).
- 147 STEPS Centre. Innovation, sustainability, development: a new manifesto. Brighton, UK: STEPS, 2010.
- 148 Hausmann R, Klinger B, Wagner R. Doing growth diagnostics in practice: a 'mindbook'. CID Working Paper no 177. Cambridge, MA: Harvard University, 2008.
- 149 Potter C, Brough R. Systemic capacity building: a hierarchy of needs. *Health Policy Plan* 2004; **19**: 336–45.
- 150 Hampshire RD, Aguayo VM, Harouna H, Roley JA, Tarini A, Baker S. Delivery of nutrition services in health systems in sub-Saharan Africa: opportunities in Burkina Faso, Mozambique and Niger. *Public Health Nutr* 2004; **7**: 1047–53.
- 151 Brown KH, McLachlan M, Cardos P, Tchibindat F, Baker S. Strengthening public health nutrition research and training capacities in West Africa: report of a planning workshop convened in Dakar, Senegal, 26–28 March 2009. *Glob Public Health* 2010; **5** (suppl 1): S1–19.
- 152 Khandelwal S, Dayal R, Jha M, Zodpey S, Reddy KS. Mapping of nutrition teaching and training initiatives in India: the need for Public Health Nutrition. *Public Health Nutr* 2012; **15**: 2020–25.
- 153 SUNRAY. Sustainable nutrition research for Africa in the years to come. 2012. http://www.unscn.org/files/Announcements/Other_announcements/SUNRAY_for_SCN__2_.pdf (accessed March 30, 2013).
- 154 Heikens GT, Amadi BC, Manary M, Rollins N, Tomkins A. Nutrition interventions need improved operational capacity. *Lancet* 2008; **371**: 3–4.
- 155 Mubiru A. Domestic resource mobilisation across Africa: trends, challenges and policy options. Washington, DC: African Development Bank Group, 2010.
- 156 Spratt S. Aid for nutrition: using innovative financing to end undernutrition. Brighton, UK: Action Against Hunger, 2012.
- 157 UNITAID. <http://www.unitaid.eu/> (accessed March 30, 2013).