

Scaling Up Impact on Nutrition: What Will It Take?^{1–4}

Stuart Gillespie,^{5*} Purnima Menon,⁶ and Andrew L Kennedy⁷

⁵International Food Policy Research Institute (IFPRI), Brighton, United Kingdom; ⁶IFPRI, New Delhi, India; and ⁷IFPRI, Washington, DC

ABSTRACT

Despite consensus on actions to improve nutrition globally, less is known about how to operationalize the right mix of actions—nutrition-specific and nutrition-sensitive—equitably, at scale, in different contexts. This review draws on a large scaling-up literature search and 4 case studies of large-scale nutrition programs with proven impact to synthesize critical elements for impact at scale. Nine elements emerged as central: 1) having a clear vision or goal for impact; 2) intervention characteristics; 3) an enabling organizational context for scaling up; 4) establishing drivers such as catalysts, champions, systemwide ownership, and incentives; 5) choosing contextually relevant strategies and pathways for scaling up, 6) building operational and strategic capacities; 7) ensuring adequacy, stability, and flexibility of financing; 8) ensuring adequate governance structures and systems; and 9) embedding mechanisms for monitoring, learning, and accountability. Translating current political commitment to large-scale impact on nutrition will require robust attention to these elements. *Adv Nutr* 2015;6:440–51.

Keywords: undernutrition, scaling up, enabling environment, evidence, strategy, implementation, capacity, financing, governance, impact

Introduction

In recent years, momentum has been building to “scale up nutrition.” Responding to the sobering words of the 2008 *Lancet* Nutrition Series, the Scaling Up Nutrition (SUN)⁸ movement (1) emerged in 2010, with 55 countries now having signed up. The Nutrition for Growth summit in June 2013 (2) led to \$23 billion in pledges. Other drivers of this growing momentum include the state-of-the-art marshaling of current evidence in the second *Lancet* series (3) that clearly articulates the consensus on the need for 3 levels of action for sustainable nutrition impact—nutrition-specific interventions, nutrition-sensitive development, and an enabling policy/political environment—and the launch of the Global Nutrition Report in November 2014.

The current reality, however, is that coverage of nutrition-specific interventions is poor in most parts of the world where they are most needed (4–6), as is the state of the major underlying determinants of nutrition (i.e., food security, women’s status, poverty, equity, access to adequate health care services, water, and sanitation) (7–9). Emerging indicators on enabling environments for nutrition also indicate that there is some distance to go on basic commitments to hunger and nutrition (10). Little is known about financing and resource gaps for nutrition by country, although the SUN movement is now supporting a process to generate insights for member countries (11).

Yet, although there is a strong consensus on what needs to be done, much less is known about how to operationalize the right mix of actions in different contexts, how to do so at a scale that matches the size of the problem, in an equitable manner, and how to do so in ways that link nutrition-specific and nutrition-sensitive interventions.

Given the poor state of nutrition-specific interventions and underlying conditions for nutrition, despite the political momentum, the primary objective of this article is to synthesize what is known about scaling up in general from nutrition and other disciplines in order to distill critical elements to guide actions that focus on scaling up impact on nutrition.

Methods

A literature search was conducted in January of 2014 adapting the method outlined by Hagen-Zanker and Mallet (12). PubMed and Google Scholar

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⁴ Supplemental Figure 1 and Supplemental Table 1 are available from the “Online Supporting Material” link in the online posting of the article and from the same link in the online table of contents at <http://advances.nutrition.org>.

⁸ Abbreviations used: HFP, homestead food production; IFA, iron and folic acid; IYCF, infant and young child feeding; SUN, Scaling Up Nutrition.

* To whom correspondence should be addressed. E-mail: s.gillespie@cgjar.org.

were used, with the following search terms for the time period 2000–2013: (“scaling up” OR “going to scale”) AND (nutrition OR health OR agriculture OR development). Both the academic and gray literature were included in the search. Sector-specific gray literature was found by using Google Scholar and through snowballing (Snowballing refers to the identification of additional relevant articles through the reference lists of articles found.), by seeking advice from key experts, and by examining references of reviewed/recommended materials. The ExpandNet bibliography (13) and a Brookings Institution bibliography (14) on scaling up were also consulted. Titles were initially screened as part of the online search process. Relevant articles were then uploaded to Mendeley reference manager, duplicates eliminated, and abstracts and full texts screened further for inclusion (**Supplemental Figure 1**). Our inclusion criteria were as follows: 1) English-language articles since 1990 that addressed issues of scaling up related to nutrition, health, agriculture, or development and 2) either presented a conceptual framework or documented the process or evaluation of results of scaling up a nutrition program. The initial searches generated 16,741 potential articles, but only 55 met both of the inclusion criteria.

To synthesize data from the prioritized articles, we extracted the following information into a matrix format: reference, objectives, conceptual approach, design, methods, findings, and lessons (**Supplemental Table 1**). Articles were further classified into 2 categories: theoretical frameworks (36 articles) and program experiences with scaling up (19 articles). To identify the key elements of scaling up, we first developed a long list of specific elements identified in the diverse theoretical and experiential articles as critical factors for scale-up. This list was condensed through careful review and deliberation among the authors into a smaller set of 9 thematic elements of success on the basis of relevance to nutrition, concept overlap (synonyms), and frequency with which each element emerged across the articles reviewed (**Table 1**).

To provide a deeper link to nutrition experiences, 4 examples of large-scale, nutrition-relevant programs in high-burden countries—2 nutrition-specific [“Alive & Thrive” in Bangladesh and iron and folic acid (IFA) supplementation in Nepal] and 2 nutrition-sensitive [“Progres-Oportunidades” in Mexico and homestead food production (HFP) in Bangladesh]—were then examined through the lens of the key domains identified in the review of the theoretical/conceptual articles. All 4 of these programs were progressively scaled up over time and have been evaluated as having significant impact either on nutrition-related practices or nutritional status (36, 71–75). Summaries of these case studies are provided in **Table 2**.

Results

In this review we highlight the key findings from the review of 36 relevant theoretical frameworks and the broader literature, noting, for each element, its crucial relevance to scaling up nutrition actions and impact and providing illustrative examples from the case studies.

Of the numerous definitions of scaling up that we found, some focus more on impact (the “ends”) (21, 24, 25, 76), whereas several focus primarily on the “means” (e.g., replication, spread, etc.) (18, 58, 77). Different terms are used to describe the notion of taking something to a greater scale (e.g., expansion, diffusion, dissemination, mainstreaming, diversification, or, in humanitarian contexts, surge). For this review, given the focus on scaling up impact, we define “scaling up nutrition” as “a process aimed at maximizing the reach and effectiveness of a range of nutrition-relevant actions, leading to sustained impact on nutrition outcomes.”

Key elements for scaling up impact on nutrition

After the review, we arranged the 9 critical elements for scaling up impact into a theory of change (**Figure 1**) to harmonize terms and concepts. We note that there is interconnectedness and dynamism across and within elements, and the relevance and the relative importance of specific elements will vary

depending on intervention, context, and timing. Below, we discuss each element.

1. Vision/goal: where are we going? If the ultimate goal is large-scale impact, then what is needed, before anything else, is a clear idea of what impact would look like, accompanied by appropriate metrics and a compelling narrative that shows why it is important and how it can be achieved. This is nicely encapsulated by the title of a WHO/ExpandNet publication, “Beginning with the End in Mind” (24).

This notion has indeed been a central feature of the program examples reviewed. In *Alive & Thrive*, for example (35, 78), the goal was stated up front and early and the vision included impact and scale. In the *Progres-Oportunidades* example, the vision for poverty reduction and improved outcomes for education and nutrition through integration of health, nutrition, and education services was stated (79). For the HFP model, the initial critical goal was to improve vitamin A deficiency through food-based approaches. In Nepal, IFA supplementation aimed to drive down the extremely high rates of anemia among pregnant women.

2. What is being scaled? Stakeholders need to be clear about what exactly is to be scaled up to achieve large-scale impact—whether it is technology, a process, project, innovation, and/or methodology. For the purposes of this review, our focus is on evidence-based, nutrition-relevant actions (nutrition-specific and nutrition-sensitive interventions, enabling policy environments).

Actions or interventions for scale-up should be efficacious first and, ideally, also show evidence of effectiveness/program efficacy (80). Although effectiveness evidence should relate to the scaling of the intervention and to its effectiveness at a large scale, most available evidence relates to interventions at a small scale (19). Reasons for success at a smaller scale may not apply as the intervention is scaled (during the process of scaling) or when it is at a large scale. Variations may occur due to intervention characteristics or complexity (56, 57) or because the context itself changes. Interventions, ideas, and innovations differ in their scalability, which, in turn, may alter their relative advantage over existing products or practices (27, 56, 81).

This is seen clearly in the *Alive & Thrive* example, where the intervention—interpersonal counseling for infant and young child feeding (IYCF)—was proven at a small scale (82) and examples existed of scaling up subcomponents of the interventions (e.g., scaling up breastfeeding counseling) (83). In Bangladesh, a high-quality interpersonal counseling context was first designed by using best practices in program design and then tested for introduction into a large-scale community platform (84, 85). This intervention development and deployment process enabled later scale-up.

For nutrition, there is great diversity in both the nature of the interventions and the nature of the contexts. In **Table 3**, we provide examples of simple and complex nutrition-specific interventions that might be delivered through diverse platforms. The challenge of scaling up even simple interventions

TABLE 1 Key elements for scaling up impact on nutrition

Element (no. of articles out of 55)	Key findings	References
Vision/goal (34)	The nature of the problem being addressed and the rationale for scaling up to address it more effectively/comprehensively were usually not described. The vision or ultimate goal of the scaling process was more often implied than made explicit.	(15–48)
What is being scaled? (28)	A lack of consistency in definitions of scaling up was apparent from the literature. Often, a certain type or aspect of scaling is discussed, rather than looking at the wider process in a multidimensional way. The start point for most articles is a particular intervention that is to be scaled.	(19, 21, 24, 27, 31, 33–39, 41–47, 49–57)
Context/enabling environment (30)	The way in which the contextual environment shapes what can/should be done—and especially the way in which the context can change—was discussed in just one-third of the articles.	(4, 16–18, 21, 24, 26, 31, 32, 34, 35, 37–44, 46–51, 54, 55, 58–60)
Drivers and barriers (28)	The role of leaders, or champions, was mentioned in approximately half of all articles.	(4, 16, 18, 25, 26, 29, 33–39, 41–45, 48, 50–54, 61–64)
Scaling-up strategy, processes, pathways (42)	The question of how to achieve scaled-up impact (which may require a convergence of several actions/interventions along with conducive underlying conditions at the household/individual level) was not so prominently addressed in the literature. Along similar lines, and consistent with the focus on a particular intervention, the notion of functional scaling—that is, the adaptation of/integration with other (additional) sectoral programs (e.g., agriculture, social protection)—is underplayed. Most frameworks focus on the quantitative dimension of scaling up—or simply put, expansion of coverage. Issues of implementation were discussed, but less emphasis was made on adaptation or flexibility. Finally, only 1 article discussed the temporal dimension of scaling in detail.	(4, 15–20, 22–27, 29–32, 35–37, 39–51, 54, 62–69)
Capacity (40)	The capacity of individuals and single organizations was emphasized, but the wider issue of systemic capacity was less frequently addressed.	(4, 16–20, 22–26, 29, 31, 33, 35–39, 41–43, 45–47, 49–51, 54, 55, 58, 60–65, 67, 68, 70)
Governance (32)	There has historically been much more focus on horizontal coherence than vertical coherence, or the alignment of actions from national to community levels. This relates to the need for balancing scaling up with scaling down, or decentralizing. Trade-offs relating to scale and quality (and cost), short-term impact and long-term sustainability, and commitment and capacity were rarely addressed in any detail.	(4, 17–20, 22, 28, 29, 32–44, 48, 50, 51, 53–55, 58, 59, 62, 65, 69)
Financing (29)	Much more is known on the financing of nutrition-specific interventions than on the costs of nutrition-sensitive programs; hardly anything is known on the costs of shaping an enabling environment for nutrition (activities such as advocacy, coalition-building, leadership training, and strategic capacity strengthening). Stability of funding is needed to allow for building of capacity, evidence, and experience. Flexibility of funding is necessary to allow for adaptive management decisions, innovations, and learning.	(18, 20, 22, 24, 26, 28–30, 33–35, 38–45, 48–50, 53, 54, 58, 63, 66, 69, 70)
Monitoring and evaluation, learning, accountability (30)	The importance of the role of monitoring and evaluation in learning through the scaling-up process is recognized. Generating evidence of this learning and of impact and how to achieve it helps to enable successful models and/or principles to be applied in other contexts. Further investments are needed to go beyond coverage monitoring and strengthen implementation research to support scale-up. Few programs invest in flexible monitoring systems, and those that do suggest significant investments are needed in capacity and funding. Only a few countries have successfully established and funded strong national institutions to support strategic, responsive, flexible, and high-quality research on scaling up health and nutrition.	(15–18, 20, 21, 23–29, 31–37, 41–43, 45, 48, 50, 52, 54, 55, 64)

TABLE 2 Program case studies that provide examples of key scaling-up elements¹

Element	Alive & Thrive, Bangladesh	IFA supplementation, Nepal	Progreso-Oportunidades, Mexico	HFP, Bangladesh
Vision/goal	Reduce stunting and anemia in children under 5 through investments in improving IYCF practices.	Reduce the prevalence of maternal and neonatal iron deficiency and anemia. A community-based platform with experience in delivering supplements to households was the primary vehicle for addressing the challenge of increasing coverage.	Reduce poverty; improve human capital, including nutrition among infants and young children.	Reduce micronutrient deficiencies of women and children by increasing dietary diversity and other essential nutrition actions.
What is being scaled?	A behavioral change communication intervention to improve IYCF practices; the intervention aims to scale up interpersonal counseling by frontline workers along with social mobilization and mass media interventions to create a supportive environment.	The government of Nepal's IIP, which included IFA supplementation for pregnant women.	A government social protection program providing conditional cash transfers to the poorest.	An agriculture intervention with a nutrition component: HFP (first horticulture, later small animal husbandry) with nutrition education.
Context, enabling environment	Extensive technical community working on IYCF in Bangladesh; successes in building evidence base for breastfeeding counseling but recognition that complementary feeding needed attention; openness to evidence including from formative research and program experiences. Adequate financing to ensure evidence-building and partnership creation.	The 1998 National Micronutrient Survey found that 75% of pregnant women were anemic. Ongoing (facility-based) efforts to address this were not implemented effectively.	Progreso-Oportunidades was created during (and driven by) the economic crises of the mid-1990s. Evidence showed that the existing food subsidy programs (e.g., for milk and tortillas) were inadequate and inefficient. Consensus was gradually built in the Cabinet regarding the subsidies, as well as that direct cash transfers had potential as an alternative.	Bangladesh had a severe vitamin A deficiency problem in the 1980s. Evidence indicated that children from homes with gardens were less likely to suffer night blindness. This food-based approach showed potential for increasing consumption of vegetables and addressing multiple micronutrient deficiencies.
Drivers and barriers	Actors and catalysts included visionary and committed leaders at BRAC, Alive & Thrive; previous experience and interest within BRAC at delivering nutrition services helped accelerate action; government acceptance/ commitment to nutrition ensured supportive environment; incentives introduced to scale up health worker to mother contacts.	The 1998 survey finding was used to raise awareness about maternal anemia and catalyze action to address it. The Micronutrient Initiative and UNICEF were primary donors supporting the government.	Visionary political leadership of 2 presidents; strong design and targeting. Existing subsidies had to be phased out carefully so as not to trigger much opposition.	Driven by HKI in partnership with >70 local NGOs and the government. Barriers included environmental factors, conflicts, animal diseases, and production and consumption cultural norms.
Scaling-up strategy, processes, pathways	Uses existing service-delivery platforms, such as the health network of BRAC. Piloted and refined integration of IYCF counseling into this platform. Scaled up (via expansion through replication) across the country in 2 phases over 1 y. Further scaling up took core model and integrated with other BRAC health platforms (e.g., MNCH).	Making use of an existing community-based platform, the program was scaled up over 7 y (2004–2011) to cover 70 of Nepal's 75 districts, achieving substantial coverage of interventions, including mothers taking IFA supplements.	Gradual phasing out of subsidy programs and gradual expansion of Progreso-Oportunidades, building on previously existing health and educational infrastructure, capacity, and personnel.	Partnering and using a repeated process of implementation, evaluation, and planning to integrate the program into existing community-based health and development program, expanding geographically.

(Continued)

TABLE 2 (Continued)

Element	Alive & Thrive, Bangladesh	IFA supplementation, Nepal	Progesa-Oportunidades, Mexico	HFP, Bangladesh
Capacity	Three cadres of community health workers who counsel, coach, train, and help mothers use good IYCF practices, mainly through home visits. All staff received quarterly training. Strong higher level technical capacity also available and strengthened through implementation process.	The program was based on delivery of interventions by FCHVs. Successful use of FCHVs in vitamin A supplementation increased trust in the health system; operations research confirmed that FCHVs could effectively deliver IFA to pregnant women and counsel them on using it. Training enhanced their counseling skills.	The program was built on previously existing health and educational infrastructure, capacity, and personnel.	Local NGOs were instrumental in funding, designing, and implementing. Innovative methods of motivating staff were used. Village nurseries served as the source of crucial inputs and knowledge.
Governance	Small group of managers at BRAC with support from FHI 360 and other experts. Lean management system that included adequate emphasis on technical skills to support and troubleshoot implementation. Periodic learning mechanisms through technical field visits, use of monitoring data.	Substantial coordination among community, district, and national levels was necessary for achieving quality implementation. The District Health Office was responsible for the management of the program, ensuring that supplies, training, and supervision were provided to the cadre of FCHVs. The Nutrition Section of Child Health Division of MOH had overall responsibility.	Transparency, accountability, and credibility of the program helped it to remain outside of politics. An interministerial coordinating agency was formed to align incentives, bringing horizontal coherence and fostering vertical links between federal policy makers and implementers on the ground.	Linking the agriculture and health sectors required new partnerships and information sharing. HKI gave partner NGOs substantial flexibility in implementation and management in order to maximize program effectiveness.
Financing	Substantial funding from BMGF ensured pilot testing and initial scale-up in BRAC platform. Successful early implementation and results from monitoring and process evaluations spurred additional funding from other donors (USAID) to support further expansion and continuation.	The IIP was government financed with support from The Micronutrient Initiative and UNICEF.	Strong senior leadership (beyond only 1 presidential administration) helped ensure financial resources over time.	The intervention was cost-effective because HFP activities were integrated with other ongoing activities. Households were able to earn some income from their efforts. However, the program itself was limited in scale within Bangladesh due to limited funding. As a model, HFP has evolved and been replicated in other countries but HKI activities are still highly dependent on donor funding. Uptake and scale-up by smaller NGOs across Bangladesh are not known; the government has not taken on the model.
Monitoring and evaluation, learning, accountability	Data-driven to inform design and implementation; data used included formative research data to develop intervention, monitoring data of 2 kinds to track progress and quality, technical visits by experts; rigorous impact evaluation is being conducted; periodic process evaluation results sharing helped reflection and discussion.	There was effective monitoring at the community, district, and national levels. Operations research in 2 pilot districts in 1999 established that FCHVs could deliver IFA effectively. Forthcoming analysis will allow the determination of the impact of the program on anemia prevalence.	There was a clear emphasis on evaluation and learning. The program was first piloted and evaluated in 1 state, garnering support. Evaluations have shown impacts on health, nutrition, education, and poverty outcomes, for a cost of <0.5% of GDP.	The success of the pilot enabled expansion. Investments were made in information systems providing feedback to enable improvements. More rigorous impact evaluations are needed to determine effectiveness of this type of program in addressing micronutrient deficiencies.

¹ BMGF, Bill and Melinda Gates Foundation; BRAC, (formerly) Bangladesh Rural Advancement Committee; FCHV, female community health volunteer; GDP, Gross Domestic Product; HFP, homestead food production; HKI, Helen Keller International; IFA, iron and folic acid; IIP, iron intensification program; IYCF, infant and young child feeding; MNCH, Maternal, Neonatal and Child Health Program; MOH, Ministry of Health; NGO, nongovernmental organization; USAID, US Agency for International Development.

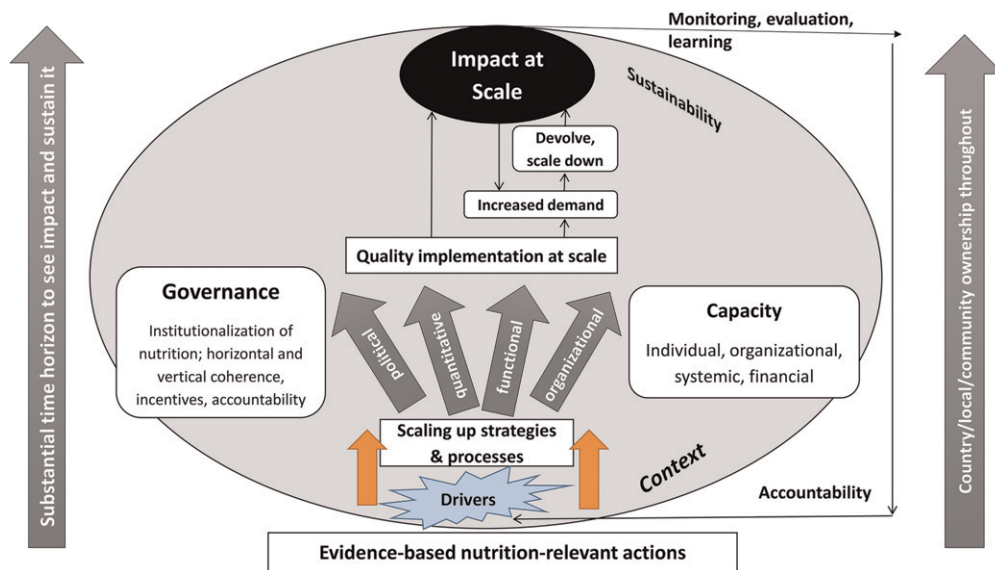


FIGURE 1 Theory of change for scaling up impact on nutrition.

can be daunting in a complex system that is not immediately well suited for the scaling-up process; conversely, scaling up a complex intervention can challenge a seemingly straightforward implementation context.

3. Context: is the environment conducive to scale-up?

Across the frameworks and examples we reviewed, several contextual factors stood out. First, the political/policy context for nutrition is dynamic and can be shaped (purposely or not) by internal or external forces (86, 87). With regard to nutrition policy per se, a recent review of coverage and implementation status of nutrition policies (88) found the majority of national policies to be deficient in many key areas (e.g., limited inclusion of evidence-informed interventions; weak focus on underlying or basic causes; frequent absence of clear goals, targets, timelines, implementation modalities, and deliverables; and a widespread neglect of capacity strengthening, monitoring, evaluation, and financing).

Second, implementation contexts are likely to dramatically shape the ability to scale up interventions and their impact. The implementation context of a stand-alone, community-based nutrition program, for example, differs from that of a

full health system into which a nutrition intervention must be integrated and delivered (e.g., the Integrated Management of Childhood Illness system). In one, nutrition is a central focus and dedicated workers and staff exist for nutrition service delivery, whereas in the other, treatment and prevention of illness is usually a main focus and there are rarely dedicated nutrition workers. Both of these contexts, and those of nutrition-sensitive programs (e.g., social protection or agriculture), raise different challenges with regard to how best to scale up impact on nutrition (89).

Finally, household and community contexts shape the ability of nutrition-relevant interventions to have impact on nutrition behaviors or nutrition outcomes, and are thus crucial to scaling up impact. Food insecurity, for example, might constrain the effectiveness of behavior-change interventions (90) as might high levels of maternal stress and poor mental well-being (91). Little is known about how maternal, household, and community contexts shape intervention effectiveness, however, and the need to invest more research resources in identifying these contextual issues is recognized (19). Successful interventions usually explicitly consider the cultural and household context and develop tailored strategies to overcome potential

TABLE 3 An illustration of the intersection of intervention complexity with implementation context complexity¹

	Simpler intervention	Complex intervention
Simpler context	Vitamin A supplementation through a campaign Distribution of micronutrient powders direct to homes through NGO platform	Complex (multicomponent) behavioral change communication intervention through community-based, nutrition-focused NGO program platform. Agricultural diversification intervention through nutrition-focused NGO program platform.
Complex context	Vitamin A/iron-folate pills/calcium supplements through multipurpose, multitiered government health system	Integrated complex behavioral change communication, micronutrient supplementation, and agricultural extension intervention through women’s self-help groups and links with government health systems. Integrated continuum of care (community to facility and back to community) for screening, identification, referral, treatment, follow-up, and management of severe acute malnutrition through multipurpose, multitiered government system

¹ NGO, nongovernmental organization.

barriers (e.g., the use of mass media in Alive & Thrive was intended to create a supportive social environment for behavior change).

4. Drivers and barriers. The literature review identified several key factors that may facilitate or constrain scale-up. First, actors or stakeholders at all levels (including nutritionally vulnerable individuals, households, and communities; community-based organizations; nongovernmental organizations; government; donors; private sector; etc.) are integral to any process of scaling up. High-level political support, for instance, is needed for coordinated action given the multisectoral nature of nutrition problems and solutions (50). In such situations, issues of governance, of horizontal (intersectoral) and vertical (intra-sectoral) coherence, and of coordination are key, thus bolstering recent calls for contextually relevant multistakeholder platforms to build harmonization and accountability (22). In Bangladesh, for example, the coming together of stakeholders involved in research, technical assistance, funding, and in government around a national IYCF alliance supported the process of scaling up in the Alive & Thrive model.

Second, a catalyst and/or champion is often needed to spark action, garner political or financial support, and transform a situation. Recent work indicates that leaders for nutrition (92) tend to be individuals who are “systemic thinkers” capable of handling complexity; they may operate laterally as boundary-spanners in fragmented networks or as catalysts in more cohesive networks and even help bridge sectoral silos (93). In Progres-Oportunidades in Mexico, the program head, Santiago Levy, was a creative champion for the program as a whole. In Bangladesh, the leadership of specific individuals within BRAC (formerly the Bangladesh Rural Advancement Committee) and Alive & Thrive helped keep the issue high on the agenda, both within the organization and across the alliance, as highlighted above.

Third, national and local ownership, either government or cross-organizational, from the beginning is usually important for sustained impact. Commitment can slowly be created through the use of data, advocacy coalitions, and external pressures (87, 94) and can be greatly affected by how problems and solutions are framed and communicated (50, 94).

Fourth, incentives are drivers that are built into systems. They may or may not be financial and they will differ substantially depending on the level of actors within systems for nutrition. More is known about incentives for frontline worker performance than for higher organizational performance by managers or organizations themselves. Peer recognition, status, and the opportunity to learn are valuable incentives for frontline providers in many social programs, as are performance-linked rewards such as certificates (95), plaques, systems for recognition by the local community, competition between service areas on the basis of performance statistics, and promotions (96).

5. Scaling up strategy, processes, and pathways. A scaling-up strategy designates what will be scaled up and how: the type of pathways and processes that are considered to be appropriate,

depending on the need and context, and the type of intervention being scaled up. The following adapted taxonomy (26, 67, 97) of 4 types of scaling-up processes (also see Figure 1) was found to be useful:

- *Quantitative*: an intervention or program expands in size, geographical base, or budget
- *Functional*: increases in the types of activities and integration with other programs
- *Political*: increases in political power and engagement with wider political processes
- *Organizational*: increases in organizational strength and capacity

These pathways may apply simultaneously or sequentially and they may be purposively driven, emergent, or both. For example, with Progres-Oportunidades, the idea for the program was first piloted at a small scale to assess its feasibility and organizational needs; it was then scaled up quantitatively in the context of a larger experimental design to build the evidence necessary. For Alive & Thrive in Bangladesh, a year-long pilot in 4 subdistricts developed the organizational strength and capacity for high-quality implementation before the scaling-up process multiplied the approach in 50 subdistricts and later in 200 more.

6. Capacity to scale up. The nature of capacities identified as essential to support scale-up is diverse and includes capacities defined by level—individual, organizational, systemic—and by purpose, e.g., capacity to plan, to implement, etc. Here, we define capacity as “the ability of a person, community or organization to take control of its own destiny and to manage and direct its development process through an iterative process of assessment, analysis and action” (98).

Capacity development for strategic and operational purposes needs to create and strengthen organizations and systems to support empowered workforces to achieve stated objectives. The type of organizational and systemic capacities required will depend on the choice of intervention(s) and delivery platform(s) (99, 100). For example, in community-based programs such as the example from Nepal, the female community health workers needed to have the appropriate skills, supplies of IFA, and the time and motivation to deliver the intervention with quality to ensure uptake, despite barriers experienced by users.

Strategic and operational capacities have been identified as being key to operationalizing nutrition-relevant actions and scaling them up successfully (101). Strategic capacity refers primarily to the ability to work within a complex, adaptive system, thus encompassing the capacity to build commitment, broker agreements, resolve conflicts, respond to challenges and opportunities, build relationships, undertake strategic communications, and strengthen operational capacities to implement at scale.

Both strategic and operational capacities can be strengthened through standard or specialized nutrition or leadership training. Capacity strengthening for nutrition, however, is poor, with outdated, impractical, and misaligned nutrition-training programs and academic curricula remaining pervasive

in high-burden contexts where nutrition service delivery is often weak (102, 103).

7. Governance. The governance of scaling up encompasses the structures and systems that underpin and support all stages of the scale-up process. This review highlights 2 major issues in relation to the importance of governance for scaling up: vertical and horizontal coherence and managing trade-offs. Good governance for scaling up impact for a multisectoral issue such as nutrition requires, among other things, horizontal (cross-sectoral) and vertical (national to community level) coherence (50). Horizontal coherence (50, 87, 93) essentially reflects Uvin's (67) "functional scaling" process whereby different sectors embark upon different types of nutrition-relevant action within their sectoral purview, with adequate coordination, integration, or simply colocation.

Vertical coherence, on the other hand, refers to the alignment of actions from national to community levels and is thus relevant to processes of "scaling down." Scaling down has been defined as a decentralization of authority, power, resources, and capacity—a shift in the balance between top-down supply and bottom-up demand (67, 104) as shown in Figure 1. In finding this balance, governments and community organizations need to agree on where their respective comparative advantages lie. In Thailand, this process was greatly enabled through the identification of minimum needs indicators for ensuring adequacies of food, health, and care for nutrition (105); identifying sectoral actions related to those indicators; and using a large number of community volunteers to close gaps in reach.

Governance also involves anticipating and resolving trade-offs. Is there, for example, a fundamental tension between community participation/ownership and scaling up (26)? Trade-offs can also occur in the balance between scaling up quantity versus quality [e.g., in the Indian Integrated Child Development Services program, where an early emphasis was on scaling up the number of child care centers, and only much later did the emphasis shift to improving quality (33, 39)]. There may also be a trade-off between the need to demonstrate short-term impacts and the need for impacts to be sustained, which might require a slower and more costly start-up as capacities are developed and ownership and demand are strengthened. Impacts at smaller scales, or on critical interim outcomes, nonetheless can certainly help make the case for sustained financing and scale-up (seen in the case of Alive & Thrive and Progres-Oportunidades), for sustained attention to the scale-up process and platform (in the Nepal case) or for the replication and adaptation of a model in other contexts (e.g., the HFP model). Finally, balancing the greater cost of outreach to very remote areas (which are also likely to have higher levels of undernutrition) with that of reaching more accessible communities represents another form of trade-off, highlighting the need to link equity with discussions of scale-up.

8. Financing scale-up. Several frameworks have highlighted the need for financial resources to enable scaling up of diverse

interventions (Table 1). Although adequacy of funding is undeniably important, stability and flexibility are necessary to enable scaling up to occur in ways that lead to impact. Stability of funding allows for building of capacity, evidence, and experience with the scaling-up process. Flexibility is necessary to allow for adaptive devolved management decisions, innovations to close locally specific gaps, and local learning. The 3 elements of adequacy, stability, and flexibility of financing were enablers in the Alive & Thrive example from Bangladesh, whereas in the HFP model, also in Bangladesh, the lack of funding to expand and sustain the model presented a barrier to scaling up impact of what was demonstrably a solid operational model for linking agriculture and nutrition.

In nutrition, a highly influential global study on scaling up nutrition-specific interventions (106) helped galvanize momentum and commitments to nutrition at a global level. A more recent study has highlighted potential gaps in costing to fully support IYCF practices (107), in addition to delivering counseling interventions included in previous costing. More work, however, is needed on country-specific nutrition budgets. A key challenge when attempting to estimate the cost of scaling up in specific contexts is that detailed costing studies that provide unit costs of interventions are usually unavailable for a given context. This could lead to either undercosting or overcosting of an intervention, and later compromise either impact or efficiency.

A notable challenge to fully estimate the cost of nutrition impact is that there is little literature on what it costs to make interventions targeting food security, agriculture, women's empowerment, and sanitation more nutrition-sensitive. Efforts are underway to estimate this (11), but the methodology is new and challenges are likely numerous and context-specific. Finally, there are no estimates available, at a global level or national level, of the costs of advocacy, coalition-building, leadership training, and the strategic capacity strengthening required to start to build enabling environments for nutrition.

In sum, with regard to financing for scaling up, more is known on nutrition-specific interventions, despite limited unit-cost data from diverse contexts. Much less is known on the costs of making programs that tackle underlying causes of undernutrition more nutrition-sensitive and more equitable. In addition, practically nothing is known of the costs of shaping an enabling environment for nutrition. Estimating and ensuring adequate, stable, and flexible funding for scaling up nutrition-relevant actions are essential to keeping up the political momentum on nutrition.

9. Monitoring, evaluation, learning, and accountability. Practically all frameworks on scaling up (Table 1) and successful programmatic experiences (33, 35, 37, 39, 52, 62, 79), including the 4 case studies in this review, have emphasized the role of monitoring and evaluation in learning through the scaling-up process, and in generating evidence of impact. Both are required to enable models, lessons, and/or principles to be successfully applied in other contexts, and this is therefore a critically important element of scaling up to invest in. Data and information from monitoring and evaluation systems are also crucial for

accountability, and thus for effective governance of scaling (see section 7 above). However, as several reviews have recently noted (108, 109), evaluations are limited and strong monitoring and learning mechanisms are often not institutionalized. Although several approaches exist for monitoring intervention coverage (e.g., diverse survey and surveillance methodologies, monitoring and information systems for health, and operations research), deeper investments are needed in strengthening implementation research to support health (and other) systems as interventions are scaled up (110). Well-documented examples of programs that are responsive to monitoring findings and invest in flexible monitoring systems and other internal learning mechanisms are rare. Those that do exist (85) suggest that significant investments are needed in capacity and funding and a real commitment both to delivering for success and to establishing learning and evaluation mechanisms.

Within nutrition, the need for stronger evidence of the impact of, and lessons from, programs that are scaling up or operating at scale is well articulated (19, 50). The range of evidence-building for scaling up innovations/programs is substantial—from studies to establish proof of impact of the intervention being scaled up, technical or operational innovations/adaptations to the core interventions, and organizational approaches to scaling up and ensuring quality at scale to, finally, large-scale evaluation databases that track coverage, equity, and quality of intervention delivery and use (4, 111). To strengthen and ensure appropriate skills and capacity to support the flexibility, pace, and quality of learning in relation to scaling up impact on nutrition, therefore, requires serious investment by governments and funding agencies.

Only a few countries have successfully established and funded strong national institutions to support strategic, responsive, flexible, and high-quality research on scaling up health and nutrition [examples include the National Institute of Public Health in Mexico, the Institute of Nutrition in Mahidol University in Thailand, and the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B)]. The nature of learning and evidence-building skills required for nutrition-sensitive interventions and enabling environments for nutrition, however, will necessitate more, and different forms of, capacity strengthening.

Conclusions

“Scaling up” has become something of a mantra within the international nutrition community in recent years, even though it apparently means different things to different people. There is a need for greater coherence and consistency with regard to the “ends and the means” of scaling up—its scope, purpose, and essential processes.

This review identified 9 critical elements to guide actions for scaling up impact on nutrition: the vision or goal of scaling; the nutrition-relevant action(s) to be scaled; the context or (enabling) environment; the drivers and barriers of scaling; its strategies, processes, and pathways; the capacity required; governance structures and systems; financing; and finally, processes of monitoring, evaluation, learning, and accountability.

Successful large-scale nutrition programs have previously had several of these elements but have been mostly focused on nutrition-specific interventions, with good reason. But a new focus that also encompasses nutrition-sensitive development and the role of leadership and enabling policy environments is a new imperative for nutrition.

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