

Engaging the Private Sector to Improve Access to Fortified Complementary Foods: Moving from the “If” to the “How”



Claire Champion
Renata Seidel

Alive & Thrive is an initiative to save lives, prevent illness, and ensure healthy growth and development through improved breastfeeding and complementary feeding practices. Good nutrition in the first 1,000 days, from conception to two years of age, is critical to enable all children to lead healthier and more productive lives. Alive & Thrive is scaling up nutrition through large-scale programs in several countries in Asia and Africa and through strategic technical support and the dissemination of innovations, tools, and lessons worldwide. Alive & Thrive is funded by the Bill & Melinda Gates Foundation and the governments of Canada and Ireland. The initiative is managed by FHI 360.

Recommended citation

Champion, C, Seidel, R. Engaging the Private Sector to Improve Access to Fortified Complementary Foods: Moving from the “If” to the “How”. Washington, DC: Alive & Thrive, February 2015.



Alive & Thrive

FHI 360
1825 Connecticut Avenue, NW
Washington, DC 20009
aliveandthrive@fhi360.org
www.aliveandthrive.org

Acknowledgments

Alive & Thrive would like to thank thought leaders from academia, civil society, and the private sector who participated in stakeholder interviews. Interviewees provided valuable insights on private sector engagement in nutrition. A list of stakeholders interviewed for this paper is provided in Annex 1.

Table of contents

| | |
|---|----|
| ACKNOWLEDGMENTS..... | 3 |
| TABLE OF CONTENTS..... | 4 |
| ACRONYMS..... | 6 |
| EXECUTIVE SUMMARY | 7 |
| 1. INTRODUCTION..... | 9 |
| 1.1 Objectives | 9 |
| 1.2 Context of public-private partnerships for FCF..... | 10 |
| 1.3 Methodology | 10 |
| 2. INITIATIVES TO ENGAGE THE PRIVATE SECTOR IN IMPROVING ACCESS TO FCFS..... | 12 |
| 2.1 Overview of fortified complementary food products | 12 |
| 2.2 Suppliers and delivery landscapes..... | 13 |
| 2.2.1 Suppliers of FCF products..... | 13 |
| 2.2.2 Delivery channels and public/private distribution | 13 |
| 2.3 Collaborative global initiatives, donor-funded projects, and international private sector initiatives | 14 |
| 2.3.1 Global collaborative initiatives focused on nutrition generally | 14 |
| 2.3.2 Donor-funded collaboration focused on young children | 15 |
| 2.3.3 Private sector initiatives focused on young children | 16 |
| 2.3.4 Collaborative research projects | 16 |
| 3. EFFICACY, EFFECTIVENESS, AND PPP PROGRAM EXPERIENCE IMPROVING ACCESS TO FCFS | 18 |
| 3.1 Evidence of FCF product efficacy and guidelines for implementers | 18 |
| 3.2 Research about common FCF-related questions and challenges | 19 |
| 3.3 Consumer issues—acceptability and willingness to pay | 21 |
| 3.4 Evidence of FCF program effectiveness | 22 |
| 4. BARRIERS AND CHALLENGES TO EFFECTIVELY ENGAGE THE PRIVATE SECTOR IN IMPROVING ACCESS TO FCF.. | 24 |
| 4.1 Underlying lack of trust between sectors | 24 |

| | |
|---|-----------|
| 4.2 Different goals, different ways of working, and different types of risk..... | 25 |
| 4.3 Weak policy, regulation, and monitoring environment | 25 |
| 5. CHALLENGES AND LESSONS LEARNED IN THE SYSTEMATIC DEVELOPMENT OF EFFECTIVE FCF INTERVENTIONS | 27 |
| 5.1 Challenges common to new health products—and special considerations for FCFs | 27 |
| 5.1.1 Plan according to the relevant policy environment (and advocate as appropriate) | 27 |
| 5.1.2 Design products for specific populations and contexts | 27 |
| 5.1.3 Position, package, and label the product — (and pretest, pretest) | 28 |
| 5.1.4 Design distribution strategies for scale, equity, and sustainability..... | 29 |
| 5.1.5 Support demand and behavior change activities—initially and over time..... | 29 |
| 5.1.6 Monitor and adjust strategies, evaluate results | 31 |
| 5.1.7 Finance with a long-term view | 31 |
| 5.2 Lack of initial/perceived business case for FCF in developing countries | 32 |
| 5.3 Challenging environment for private sector growth (local and mid-sized companies)..... | 33 |
| 6. ROLES OF THE DIFFERENT SECTORS AND PRINCIPLES—AND LESSONS—OF ENGAGEMENT | 34 |
| 6.1 Roles of respective partners in a PPP | 34 |
| 6.2 Focus on roles of the public sector | 35 |
| 6.3 Principles and processes for engagement | 37 |
| 7. PRIORITIES FOR THE NEXT 5-10 YEARS TO LEVERAGE THE FULL POTENTIAL OF PRIVATE SECTOR ENGAGEMENT | 39 |
| 7.1 Focus on key areas for additional research | 39 |
| 7.2 Create and enforce international guidelines..... | 40 |
| 7.3 Take further action to help rebuild trust and effective collaboration across sectors | 40 |
| 7.4 Expand efforts to launch fully integrated, long-term programs that effectively segment the market | 41 |
| 7.5 Document lessons and best practices..... | 41 |
| 8. CONCLUSION | 42 |
| ANNEX 1: LIST OF INTERVIEWEES..... | 43 |
| ANNEX 2: REFERENCES..... | 44 |

Acronyms

| | |
|--------|--|
| A&T | Alive & Thrive |
| CCT | conditional cash transfer |
| CFS | complementary food supplements |
| CSR | corporate social responsibility |
| DSM | Royal DSM Inc. |
| EMDTI | Ethiopian Meat and Dairy Technology Institute |
| FCF | fortified complementary food |
| FES | focused ethnographic study |
| GAIN | Global Alliance for Improved Nutrition |
| GSK | GlaxoSmithKline plc |
| HF-TAG | Home Fortification Technical Advisory Group |
| IBFAN | International Baby Food Action Network |
| iLiNS | International Lipid-Based Nutrient Supplements Project |
| INGO | international nongovernmental organization |
| IYCF | infant and young child feeding |
| IYCN | infant and young child nutrition |
| LNS | lipid-based nutrient supplement |
| MNP | micronutrient powder |
| MOH | Ministry of Health |
| MIYCN | maternal, infant and young child nutrition |
| NGO | nongovernmental organization |
| NIN | (Vietnamese) National Institute for Nutrition |
| PPPs | public-private partnerships |
| PSI | Population Services International |
| R4D | Results for Development |
| SNNPR | Southern Nations, Nationalities, and People's Region |
| SUN | Scaling Up Nutrition |
| UN | United Nations |
| UNICEF | United Nations Children's Fund |
| UNSCN | United Nations Standing Committee for Nutrition |
| US | United States |
| USAID | United States Agency for International Development |
| VGCL | Viet Nam General Confederation of Labor |
| WFP | World Food Program |
| WHA | World Health Assembly |
| WHO | World Health Organization |
| WTP | willingness to pay |

Executive summary

Private sector engagement in nutrition has gained momentum in the past decade. Public-private sector collaboration has been widely promoted as a key programmatic approach to scale up nutrition interventions. Ready-to-use complementary food products for children aged 6 to 24 months have become widely available in developing countries and often represent the first choice of mothers, due to their convenience. Most of the products, however, are processed and few meet the nutrition requirements of young children. Higher quality products are generally not affordable to the majority of households.

While there is now global acknowledgment of the need for and benefits of engaging the private sector in improving access to quality and affordable fortified complementary foods (FCFs) for older infants and young children, policy makers, donors, civil society, and commercial companies are still struggling to go beyond initial good intentions and operationalize alliances and partnerships that will lead to desired results. Challenges and barriers are apparent—including natural differences in underlying objectives and operating principles between the sectors, a history of mistrust stemming from the marketing of infant formula in developing countries, the complexity of reaching low-income populations at scale, the need to broker alliances with many partners having diverse agendas, and the importance of measuring outcomes from private sector engagement.

In consideration of these issues, it is time to move away from debating the “if” and focus on understanding the “how.” The next decade will be about defining, testing, and refining rules of engagement.

The objectives of this paper are to: 1) Describe trends in private sector engagement in improving access to FCFs targeting children 6–24 months of age, including background regarding FCF efficacy and effectiveness; 2) Identify barriers and challenges to effectively engage the private sector in this area; 3) Share lessons learned in the systematic development of collaborative FCF interventions; 4) Examine the respective roles of the public and private sectors; and 5) Propose key priorities for the next 5–10 years in order to leverage the full potential of private sector engagement.

This paper focuses specifically on FCF products targeting children 6–24 months of age in developing countries. Our research included fortified supplements (micronutrient powders, lipid-based and soy-based nutrient supplements) as well as fortified blended foods (e.g., cereals, porridges). We did not include initiatives on national fortification of staple foods for the general population.

The work was conducted under the Alive & Thrive (A&T) project, an initiative aiming to improve infant and young child nutrition (IYCN) by increasing rates of exclusive breastfeeding and improving complementary feeding practices. Research for the paper utilized three approaches: documentation of activities and lessons learned from the A&T project in engaging the private sector in reducing stunting in Bangladesh, Ethiopia, and Viet Nam; a literature review of relevant peer-review journals and gray literature; and interviews with 26 key stakeholders and thought leaders from academia, civil society, and the private sector.

Challenges emerging from this review highlight the need for priority actions in several areas in the next 5–10 years. The last section of this document recommends a number of actions in each of these areas:

- 1) Address research gaps.** Evidence regarding the efficacy and the effectiveness of FCFs is still in a relatively early stage; research is crucial to program implementation by both sectors. At the same time, the identification of key issues for investigation provides grounds for public-private collaboration and support. Much of the debate about private sector engagement in nutrition for older infants and young children centers on questions which have been (and continue to be) studied. A long list of questions remain priorities for study.
- 2) Create (or clarify) and enforce international guidelines.** The still-evolving policy environment for FCFs makes it especially challenging for actors with different interests to reach consensus on correct mutual action. Both the literature review and stakeholder interviews highlighted the urgency of

developing or further clarifying FCF standards and guidelines and developing better monitoring and enforcement mechanisms. Guidelines at the country level will follow; harmonization at the local level may continue to be problematic. Champions in government are a prerequisite for new program design.

- 3) **Expand efforts to launch fully integrated, long-term programs that effectively segment the market.** Increase investment in long-term programs (as opposed to pilot studies) that have the potential to improve broad public awareness of new products and allow new delivery channels to mature and approach true scale and sustainability. Collaborate between sectors to segment the market and design tailored strategies for fully commercial, subsidized, and free distribution channels in order to reach all target groups and achieve a cross-subsidy if possible.
- 4) **Rebuild trust across sectors.** In public-private partnerships, follow systematic steps to ensure continuous communication, transparency, accountability, and respect for the legitimate interests of both the public and private sectors.
- 5) **Document best practices.** Information about both successes and failures in FCF program implementation and private sector engagement in infant and young child nutrition generally are urgently needed. Documentation should include any side effects of private sector engagement and how to minimize or prevent them.

This review highlighted the importance of the public sector role in creating an enabling environment for necessary risk-taking by interventions aimed at equity, affordability, and scale. The private sector considers the commercialization of FCF products a risky endeavor because of a weak business case and also the reputational risk associated with starting any FCF-related activity. Without commitment from the public sector to clarify existing guidelines and regulations, fund generic FCF promotion, and support distribution to lower-income areas to increase market size, commercial partners are reluctant to commit. Without establishing a safety net at the bottom of the pyramid, the public sector will not meet its social objectives. Both sectors have an incentive to extend the initial commercial market beyond the traditional urban and peri-urban channels. However, this will involve serious financial and technical commitments from both sectors.

There is also growing recognition that “no one solution can adequately provide all of what young children require and other factors such as timing, food safety, and proper feeding practices come into play” (Badham 2013). Many stakeholders go further and recommend that FCF projects must be aligned and integrated into multi-sector interventions that combine nutrition-specific, health-based approaches with food systems and livelihood-based interventions (Remans 2011; Pinstруп-Andersen 2013; Ruel 2013).

This brief review demonstrates that the expertise, the spirit of innovation, and the vision necessary for such an integrated approach to infant and young child nutrition are abundantly available. Effective collaboration is needed to move forward.

1. Introduction

Public-private sector collaboration has been widely promoted as a key programmatic approach to scale up nutrition interventions. Alliances with the private sector have emerged, such as the Amsterdam Initiative Against Malnutrition, the Scaling Up Nutrition (SUN) Business Network, and the New Alliance for Food Security and Nutrition. Nutrition-sensitive interventions have also been integrated into private sector programs in economic development, agriculture, and social entrepreneurship and innovation.

Commercially produced ready-to-use complementary products for children 6–24 months of age are widely available in developing countries and, due to their convenience, are often the first choice of mothers. However, most of these are processed products and few meet the nutrition requirements of young children. Higher quality products are generally not affordable to the majority of households.

While there is now global acknowledgment of the need for and benefits of engaging the private sector in improving access to quality and affordable fortified complementary foods (FCFs), policy makers, donors, civil society, impact investors,¹ and commercial companies are still struggling to go beyond good intentions and operationalize alliances and partnerships that will lead to desired results.

1.1 Objectives

The objectives of this paper are to:

- Describe trends in private sector engagement in improving access to FCFs targeting children 6-24 months of age, including background regarding FCF efficacy, effectiveness, and program experience
- Identify barriers and challenges to effectively engage the private sector in this area
- Share lessons learned in the systematic development of collaborative FCF interventions
- Examine the respective roles of the public and private sectors
- Propose key priorities for the next 5-10 years in order to leverage the full potential of private sector engagement

Research for the paper focused on fortified supplements (micronutrient powders, lipid-based and soy-based nutrient supplements) as well as fortified blended foods (e.g., cereals, porridges). These products are designed for situations in which the local diets for older infants and young children do not provide enough essential nutrients (HF-TAG 13). Initiatives on national fortification of staple foods for the general population were outside the scope of this paper because these products do not “resolve the problem of nutrient deficiencies for the 6-24 month age group because young children eat too little of the fortified staple foods to obtain an adequate dose of each essential nutrient” (Dewey 2009).

The definition of public-private partnerships (PPPs) used in this paper is that posed by the SUN Task Force on Private Sector Engagement:

[PPPs] involve at least one private for-profit organization with at least one not-for-profit organization, who provide a joint sharing of efforts and of benefits, and are committed to the creation of social value (improved nutrition and health), especially for disadvantaged populations.

Private sector refers here to for-profit entities, whereas the *public sector* includes government authorities, donors, international aid agencies, and local non-governmental organizations.

¹ Impact investors make investments in companies, organizations, and funds with the intention of generating measurable social and environmental impact alongside a financial return.

1.2 Context of public-private partnerships for FCF

Public-private partnerships to promote improved health among vulnerable populations are not new. Principles and frameworks for collaboration have been proposed to help ensure effective communication and overcome common obstacles to partnerships aimed at ensuring access to and correct use of oral rehydration salts (and now ORS plus zinc), modern contraceptives, handwashing with soap, point-of-use water treatment products, insecticide treated nets, and other products. However, engaging the private sector to improve access to fortified complementary foods faces steep challenges not faced by other interventions.

The first of these challenges is the nature of the product(s) themselves. While improvements in health products are anticipated over time (e.g., the osmolarity of ORS) and the possibility of offering families choice (e.g., different point-of-use water treatment methods) is always advantageous, the range of product options is generally finite and their efficacy documented by the World Health Organization before promotion begins.

The nutritional science involved in FCFs is still evolving, and guidelines are still being written (Dewey 2012; Sweet 2012). Moreover, local food habits and nutritional gaps—and the need for an FCF as well as the nature of a potential product or products—vary from context to context and require extensive research in every case. There is no “pre-packaged” intervention to meet the nutritional needs of 6–24 month olds in every given community. The complexity of child nutrition creates ripples throughout the process of partner engagement.

Secondly, child nutrition is burdened with a history of mutual public-private mistrust stemming from the marketing of infant formula in developing countries (Singh 2010). Today, many stakeholders see FCFs as potentially undermining consumption of both breastmilk and beneficial traditional local foods.

“The inability to have a debate on the rules of engagement with the private sector is costing children’s lives and wellbeing. And the stand-off is so pointless because the private sector is already incredibly influential.”

Laurence Haddad, Director of the Institute of Development Studies, Sussex

Additional challenges common to many public-private partnerships include the complexity of reaching low-income populations at scale, managing alliances with many partners and diverse agendas, and measuring outcomes from private sector engagement.

In consideration of these issues, it is time to move away from debating the “if” of partnerships and focus on the “how.” The next decade will be about defining, testing, and refining the rules of engagement for public-private partnerships, while moving forward with continuously improved FCF products and recommendations for their appropriate use.

1.3 Methodology

The present work was conducted under the Alive & Thrive (A&T) project, an initiative aiming to improve infant and young child nutrition (IYCN) through improved breastfeeding and complementary feeding practices. A&T’s interventions target more than 16 million children under 2 years of age in Bangladesh, Ethiopia, and Viet Nam. A&T’s mandate is to disseminate evidence and lessons learned from those activities so that others can adapt and replicate the cost-effective components of the project. Over the past five years, A&T has engaged the private sector for its activities aiming to increase supply, demand, and use of FCFs, as well as in workplace programs and corporate social responsibility (CSR) activities.

Research for this paper included the following:

- **Documentation of activities and lessons learned from the A&T project** in engaging the private sector to reduce stunting in Bangladesh, Ethiopia, and Viet Nam. Sources of information included A&T’s internal documents and in-depth interviews with the project’s senior management, country

directors, private sector specialists, and external consultants contracted for the private sector activities.

- **A review of peer-review journals and gray literature** using key words such as *fortified complementary foods, micronutrient powder, Sprinkles, lipid-based nutrients, fortified blended foods and cereals, private sector engagement in nutrition, and stunting reduction.*

The search was limited to documents published between 2009 and 2013; however, these documents often reviewed programs from earlier years. Many initiatives are still in early or pilot stages, so the literature on this subject is limited. This in turn pointed to a need to reach out to key stakeholders for their personal insights.

- **Interviews with 26 key stakeholders and thought leaders** from academia, civil society, and the private sector (conducted June – September 2013). Questions focused on barriers to and challenges of private sector engagement and how to overcome them, the roles and expectations of the different sectors, how to monitor and assess private sector engagement, and key actions for the next five to ten years to leverage the full potential of private sector engagement in improving access to FCFs. (See Annex 1 for a list of those interviewed.) 7

The next part of this paper focuses on the current landscape and initiatives to engage the private sector in improving access to FCF products, including background on efficacy, effectiveness, and program experience with FCFs. Sections 4 and 5 focus on challenges and lessons learned, and Section 6 looks at the roles of the public and private sectors and principles of engagement in these programs. Section 7 suggests priorities for the next 5-10 years to leverage the full potential of private sector engagement in improving access to fortified complementary foods.

2. Initiatives to engage the private sector in improving access to FCFs

2.1 Overview of fortified complementary food products

Fortified complementary food products can be divided into two general categories:

- **Fortified supplements** to be added to a child’s regular homemade complementary food
- **Fortified blended foods** (primarily manufactured fortified cereals or porridges)

Fortified supplements are designed to fill gaps in the local diet and do not require any change in the usual complementary food fed to a child, (along with continued breastfeeding), from 6 to 24 months of age. They are easy to use and to store (requiring no dilution or refrigeration). Fortified supplements are of three basic types (HF-TAG 2013):

- **Micronutrient powders** (MNPs): powdered preparations of multiple micronutrients including most importantly iron, zinc, and vitamin A, but typically several more—usually packaged in single-serving sachets and mixed into a child’s food while cooking or when it is ready to eat.

Local brands include *Pushtikona* and *Monimix* in Bangladesh, *Chispitas* in Latin America, and *Taburia* in Indonesia.

- **Lipid-based and soy-based nutrient supplements** (LNS): paste preparations containing vitamins, minerals, energy, protein, and essential fatty acids that are mixed into food when it is ready to eat.

Nutriset and its affiliate in Niger (Société de Transformation Alimentaire) market Nutriset LNS (called Nutributter) under the *Grandibien* brand.

- **Powdered complementary food supplements (CFS) and crushable tablets:** powdered preparations of micronutrients that can also contain high-quality protein, essential fatty acids, amino acids, enzymes, and macro-minerals (e.g., calcium, magnesium, potassium, or phosphorus), mixed into food that is ready to eat.

Examples include *Ying Yang Bao* (micronutrient powder mixed with full-fat soybean powder) in China² and *TopNutri* (a mixture of soy protein, Lysine, minerals, and vitamins) manufacture tested in Mongolia.³

The choice of whether and what kind of supplement to consider begins with an investigation of dietary gaps (see box). Once dietary gaps have been considered, other contextual factors also come into play.

Different Problems, Different Products, Different Costs

“An important consideration is the initial nutritional status of the target population and the nutritional problem being targeted.

If the primary aim is anaemia prevention, then products with micronutrients only [e.g., MNPs] may be most cost-effective, but if household food insecurity is common and/or reduction in stunting is a key goal, then products that provide some macronutrients in addition to micronutrients [e.g., LNS] may be more effective even if the cost is higher.”

Source: Dewey 2009

² Further information about *Ying Yang Bao* is at: <http://hftag.gainhealth.org/products/ying-yang-bao> (accessed August 20, 2013).

³ Further information about *TopNutri* is at: <http://gcrieber-compact.com/page/2624/TopNutri> (accessed August 20, 2013).

As of 2011, 47 countries were conducting or planning to conduct home fortification interventions in the next year. Information about these activities was collected via a survey of 152 countries by the Home Fortification Technical Advisory Group, which provides a central, online resource of standards, guidelines, and resources for program implementers (see box). Results of this global assessment were released in May of 2013 and focused on home fortification of complementary foods distributed through either the public or private sector (HF-TAG 2013).

The second large category of FCF products—**fortified blended foods**—primarily includes manufactured infant cereals or porridges that are fortified with essential nutrients.

Examples include *Favina* in Vietnam, *Mi Papilla* in Ecuador, *Farinor* in Ivory Coast, *Incaparina* in Guatemala, *Superamine* in Algeria, and others, including various global brands produced by international food and beverage companies.

Central Resource on Home Fortification

The Home Fortification Technical Advisory Group (or HF-TAG) is a global network of stakeholders from governments, the United Nations, non-governmental organizations, and the private and academic sectors. The network seeks to represent all these key groups and address the most important barriers to home fortification. HF-TAG advocates for and supports effective home fortification interventions at scale for children and women.

The HF-TAG website aggregates and connects existing resources. Guidance is based on a review of evidence as well as on best practice and experience with policy formulation and program implementation. The website has an affiliated community of practice.

More information is available at: www.hftag.org

2.2 Suppliers and delivery landscapes

2.2.1 Suppliers of FCF products

The full scope of global sales and distribution volumes of FCF products are unknown. However, global players (rather than regional or local manufacturers) dominate the current supply of FCF products.

MNPs. Three companies—Royal DSM (DSM), Piramal, and Hexagon—supply the great majority of MNPs around the world. Local MNP manufacturers include Renata in Bangladesh and Laboratorios LAFAR in Guatemala. However, neither of these companies compare with the global actors in terms of volume and outreach.

LNS products. LNS products are currently produced mainly by the French company Nutriset and its affiliates (including Edesia, Nutriset’s sister organization in the United States). Valid International, based in England, is working on developing a new LNS product in partnership with local manufacturers in Kenya, Ethiopia, and Malawi.

CFS products. *TopNutri* is produced by the Norwegian company GC Rieber Compact. *Yin Yang Bao* was developed by the Chinese Center for Disease and Prevention and is produced in China.

Fortified blended foods. A more diverse range of manufacturers produce fortified blended foods and include both local and global food and beverage companies.

2.2.2 Delivery channels and public/private distribution

Delivery channels for FCFs vary greatly and differ by country and product. Channels range from health centers, to pharmacies, to markets and small shops. Distribution can be fully commercial, partially subsidized, or free.

According to the HF-TAG, **most MNP and LNS products** to date have been distributed for free to beneficiaries through public sector channels. In 2011, UNICEF and the World Food Program (WFP) procured

approximately 68 percent of MNPs worldwide. Market-based approaches represent less than 10 percent of the distribution channels for MNP and LNS products.

On the other hand, **half of the complementary food supplements (CFS) and almost all fortified blended foods (FBF)** are delivered through commercial channels (HF-TAG 2013).

The maturity of the local market has influenced the degree of public subsidization for FCF products. In more mature markets (such as Viet Nam or Latin American countries) products have generally (but not always) received lower subsidies. In less mature markets (such as Haiti), products have received a higher level of public sector support.

Much has been written about the need to segment the market for FCF products and to utilize a combination of commercial, subsidized, and free distribution channels to improve access to the most vulnerable populations and increase cost-efficiency (Bahl 2013). In practice however, there have been few coordinated efforts to reach multiple market segments through tailored distribution strategies.

2.3 Collaborative global initiatives, donor-funded projects, and international private sector initiatives

The private commercial sector has unquestionable influence on adult and child nutrition and enormous potential to influence public health on a large scale. According to the 2013 series on nutrition in *The Lancet*, “the scale, know-how, reach, financial resources, and existing involvement of the private sector in actions that determine nutrition is well known” (Gillespie 2013). Recently there has been growing momentum for increased public sector stakeholder involvement in (and funding and resources for) collaborative action with the private sector to improve the nutritional status of vulnerable groups.

2.3.1 Global collaborative initiatives focused on nutrition generally

Many international agencies now systematically include a component on private sector engagement in their analyses and recommendations regarding nutrition-related strategies and investments. Among these are the UN Standing Committee on Nutrition, the UN Secretary-General’s High-Level Task Force on the Global Food Security Crisis, the Global Nutrition for Growth Impact, the New Alliance for Food Security and Nutrition, and the 1,000 Days Partnership.

Most of these public-private initiatives (with the exception of the 1,000 Days Partnership), focus on *nutrition in general*. Because interventions targeting older children and adults are less controversial than those focused on the months during which continued breastfeeding is recommended, more time and resources are generally allocated to population-based interventions (e.g., national fortification of staple foods) than to products or activities targeting infants and young children. However, the broader initiatives are breaking important ground in building trust between sectors, initiating partnerships, and increasing investments—all of which are critical to moving toward more fruitful collaboration on child nutrition issues and products.

The Scaling Up Nutrition (SUN) Initiative has formed the SUN Business Network (SBN), which “aims to harness business expertise and apply its strengths and comparative advantages to improve nutrition.”⁴ The Network advocates for more transparency and accountability around private sector engagement and has developed a public register of member commitments. Each organization states its planned or actual contribution (financial or otherwise) to either nutrition-specific or nutrition-sensitive interventions.

⁴ See <http://scalingupnutrition.org/the-sun-network/business-network> (accessed August 13th, 2013).

The SBN has also developed a *Private Sector Engagement Toolkit* to document potential opportunities for partnerships and share best practices (see box).

As part of the G8's Nutrition for Growth summit in 2013, 27 companies joined the UK and Brazilian governments, donors, and 15 developing countries, in making new commitments to scale up nutrition.

Ashoka, the largest network of social entrepreneurs worldwide, recently launched the Nutrients for All initiative, which aims to encourage social entrepreneurs in the nutrition sector through a business competition and online training and sharing of best practices.⁵

The Global Alliance for Improved Nutrition (GAIN), a Swiss foundation created in 2002 to support public-private partnerships to improve nutrition in 30 countries, has created an *Access to Nutrition Index* that measures private sector commitment in nutrition. The Index provides a ranking of global and regional food and beverage manufacturers based on their nutrition practices and efforts to address problems of undernutrition and obesity.⁶

This combination of networks, registers, and toolkits reflects an increasingly positive atmosphere for partnerships, while also improving public access to information about private sector involvement in nutrition and to any potential conflicts of interest.

2.3.2 Donor-funded collaboration focused on young children

Donors have also supported a few large-scale in-country projects targeting children 6–24 months of age and aiming to increase access to FCF products, often as part of a package of nutrition and other health and development activities (see also Section 3.4 below on program effectiveness). Among these are the following:

- The Bill & Melinda Gates Foundation is funding the Alive & Thrive project in Bangladesh, Viet Nam, and Ethiopia to improve access to fortified complementary foods and related products as part of an integrated approach to reduce stunting.⁷
- GAIN supports FCF interventions in several countries in Asia, Africa, and Latin America.⁸
- Project Laser Beam, a five-year partnership launched in 2009 among WFP, Unilever, Mondelez International Foundation (formerly Kraft Foods Foundation), DSM, and GAIN, includes activities to improve access to nutritious supplements for children 6–24 months of age through both the public and private sectors in Indonesia and Bangladesh (see box below).⁹

A Toolkit for Engaging the Private Sector

The Toolkit on Private Sector Engagement was created in 2011 by the SUN Movement to help “facilitate constructive, cross-sector dialogues to encourage private sector engagement in the process of scaling up nutrition at country-level.”

It summarizes capabilities and potential opportunities for the private sector to link to priority nutrition interventions; explains some of the challenges of working in public-private partnership and how best to overcome those challenges; provides recommendations for equitable nutrition partnerships; and offers examples of best practices of successful PPPs in direct nutrition interventions and nutrition sensitive approaches.

Access the toolkit at: http://scalingupnutrition.org/wp-content/uploads/2013/02/Business-Network_Private-Sector-Engagement-Toolkit.pdf

⁵ See <http://www.changemakers.com/nutrientsforall> (accessed August 27, 2013).

⁶ See: <http://www.gainhealth.org/business-alliance/access-nutrition-index> (accessed August 27, 2013).

⁷ See: <http://www.alive&thrive.org> (accessed August 27, 2013).

⁸ See: <http://www.gainhealth.org/programs/multinutrient-supplements> (accessed August 25, 2013).

⁹ See: <http://www.wfp.org/partners/private-sector/ways-partner/laserbeam> (accessed August 25, 2013).

- Population Services International (PSI), a U.S.-based NGO, manages social marketing activities for MNP products in Pakistan, Haiti, and Botswana.¹⁰
- In August 2013, the Clinton Health Access Initiative (CHAI) announced a new initiative to work with local producers and food processors in Rwanda and Ethiopia to manufacture and distribute fortified foods for children under five and pregnant women (see box).

Most of these projects include strong monitoring and evaluation components and aim to collect and share lessons learned. However, few have published findings yet due to their early stages of development or implementation.

2.3.3 Private sector initiatives focused on young children

Private sector companies have also launched their own initiatives. Examples include the following:

- DSM launched Sight and Life, a humanitarian nutrition think tank that aims to “grow the evidence base for micronutrients, advocate better nutrition for brighter futures, share knowledge for improved nutrition, and promote partnerships and capacity building.”¹¹
- The pharmaceutical company GlaxoSmithKline (GSK) partners with Save the Children to research new affordable nutritional products to help alleviate malnutrition in children.¹²
- In 2006, the global food company Danone and the microfinance pioneer Grameen Bank formed a joint venture called Grameen Danone Foods to produce a low-cost fortified yogurt in Bangladesh.¹³

2.3.4 Collaborative research projects

Partnerships of different kinds have been formed to support research on product efficacy and effectiveness. Donors have often funded independent product assessments by universities and in collaboration with civil society.

For example, the International Lipid-Based Nutrient Supplements project (iLiNS) is a research collaboration with universities in the U.S., Burkina Faso, Ghana, and Malawi that aims to evaluate the efficacy of “new and

FCFs Increasingly Find a Place in Integrated Donor Approaches

Project Laser Beam brings together the expertise of UN agencies and Fortune 500 companies and others in Bangladesh and Indonesia to create a sustainable and replicable PPP model for reducing malnutrition. Home fortification activities are part of an integrated approach including sanitation and handwashing, access to clean water, deworming, immunization, therapeutic feeding for the severely malnourished, and nutrition education and behavior change.

More on Project Laser Beam:

<http://www.wfp.org/partners/private-sector/ways-partner/laserbeam>

Newly launched public-private sector partnerships funded by Clinton Health Access Initiative aim to help governments reduce chronic malnutrition through a combined health and economic development approach. The program will help create local companies that can produce fortified foods based on local agricultural goods and will promote appropriate IYCF practices. The program will increase incomes of small holder farmers and create world class food processing industries in Africa.

More on CHAI: <https://www.clintonfoundation.org/main/news-and-media/press-releases-and-statements/the-clinton-health-access-initiative-and-the-government-of-rwanda-announce-nutrition-program.html>

¹⁰ See: <http://www.psi.org/our-work/healthy-lives/interventions/home-and-industry-level-fortification-micronutrient-powders> (accessed August 25, 2013).

¹¹ See: <http://www.sightandlife.org> (accessed August 25, 2013).

¹² See: <http://www.gsk.com/partnerships/save-the-children-partnership.html> (accessed August 25, 2013).

¹³ See: <http://www.danonecommunities.com/en/content/danonecommunities-what-it> (accessed August 25, 2013).

less costly LNS formulations, study the impact of providing LNS to infants and to pregnant and lactating women, and explore the economic dimensions of LNS used to prevent malnutrition.”¹⁴

GAIN also supports FCF efficacy and effectiveness studies in various settings. The GAIN Business Platform for Nutrition Research was launched in September 2013 to generate evidence to tackle underlying causes of and solutions to global nutrition problems, including the dual burden of stunting and obesity. It includes companies such as BASF, Britannia, DSM, GSK, Mars, Nutriset, PepsiCo, and Unilever.¹⁵

¹⁴ See: <http://www.ilins.org/about-ilins> (accessed August 13, 2013).

¹⁵ See: <http://www.gainhealth.org/editorials/gain-launches-business-platform-nutrition-research> (accessed November 29, 2013).

3. Efficacy, effectiveness, and PPP program experience improving access to FCFs

Evidence regarding the efficacy and the effectiveness of FCFs is still in a relatively early stage; research is crucial to program implementation by both sectors. At the same time, the identification of key issues for investigation provides grounds for public-private collaboration and support.

3.1 Evidence of FCF product efficacy and guidelines for implementers

Of the different FCF product categories, **MNPs** have been evaluated the most extensively and the evidence is strongest for these. A Cochrane review assessed the safety and the effects of fortification of foods with MNPs on various outcomes among children under two (De-Regil 2011). The review determined that MNPs reduced anemia by 31 percent and iron deficiency by 51 percent over placebo or daily iron drops. No effect was found on growth.

Only one product in an efficacy trial of **crushable tablets** was designed to be mixed with complementary foods and therefore qualifies as an FCF. The study in South Africa compared different daily and weekly micronutrient tablets, daily iron drops, and a placebo. The daily tablets were more effective for improving anemia as well as iron, zinc, riboflavin, and tocopherol status (Dewey 2009). A study comparing the efficacy of crushable tables with that of Sprinkles (MNP) and Nutributter (LNS) found that crushable tablets had similar effects as Sprinkles on iron status and other factors (Adu-Afarwuah 2007).

Evidence of the efficacy of **LNS products** is advancing. Blanket provision of LNS in Chad showed impact on linear growth, lower anemia, and lower morbidity (Houngbe 2012). However, mixed results were found in Malawi and the Democratic Republic of Congo (Phuka 2008; Lin 2008; Bisimwa 2012). Dewey points out that understanding outcomes depends on many factors; in these latter programs ingredients varied (especially in terms of milk products—which can affect growth—and phytates—which affect absorption) and the foods/supplements consumed by comparison group children also varied.

The Challenges of Determining LNS Efficacy

“These studies [regarding different LNS products] illustrate that conclusions regarding the efficacy of various types of LNS may depend on the target group (age range), baseline prevalence and type of undernutrition, study design (e.g., type of control group; duration of intervention), and ration size and composition of the products being evaluated. Large variability across these dimensions in the small number of studies conducted to date makes it impossible to generalize.”

Source: Dewey 2012

The variation among LNS products to date has made it especially difficult to reach definitive conclusions about efficacy (see box).

Because of the different evidence bases for MNPs and LNS products, resources for implementers also vary. For example, the Home Fortification Advisory Group provides guidelines on MNPs but not on LNS products (HF-TAG 2013). Other important guidelines and resources include the following:

- In 2011, the World Health Organization (WHO) published a guideline on the use of MNP for children 6–23 months of age with global, evidence-based recommendations on product use (WHO 2011).¹⁶
- In 2012, GAIN released nutritional guidelines for complementary foods and complementary food supplements with the objective of establishing criteria for the selection of the products GAIN will

¹⁶ See http://apps.who.int/iris/bitstream/10665/44651/1/9789241502047_eng.pdf (accessed August 15, 2013).

support through its activities (GAIN 2012).¹⁷

- In July 2013 a revised Guidelines on Formulated Supplementary Foods for Older Infants and Young Children (CAC/GL 8-1991) was issued by the Codex Alimentarius (CODEX) of the Food and Agriculture Organization of the UN and WHO. It provides guidance on recommended serving sizes, optimal ratio of essential fatty acids, updated vitamin and mineral references from FAO/WHO, a minimum 50 percent recommended nutrient intake for fortification purposes with essential vitamins and minerals, extension of the definition of FCF beyond porridges to include CFS and LNS, and recommendations on processing techniques to minimize or reduce anti-nutrients.¹⁸
- In 2009 the Formulation Subgroup of the MIYCN Working Group released a report on “Formulations for fortified complementary foods and supplements: Review of successful products for improving the nutritional status of infants and young children.” It discusses the numerous issues that need to be taken into consideration when developing a complementary food product for children 6–24 months of age. It also identifies areas of consensus for the management of moderate malnutrition (MIYCN Working Group 2009).¹⁹
- A few initiatives over the past five years have aimed to clarify some of the existing codes, rules, and relevant regulations. In 2010, the Maternal, Infant and Young Child Nutrition Working Group of the Ten Year Strategy to Reduce Vitamin and Mineral Deficiencies published recommendations on how to interpret and use the International Code of Marketing of Breast-Milk Substitutes (MIYCN 2010).²⁰

3.2 Research about common FCF-related questions and challenges

Much of the debate about private sector engagement in nutrition for older infants and young children centers on questions which have been (and continue to be) studied. These include the following:

- **Are FCF products *necessary* to meet the nutrition needs of young children?**

A question of primary importance is whether local (non-processed) foods, in addition to breastmilk, can meet the nutritional needs of 6–24 month old children without some form of supplementation. Several recent studies have found that complementary foods prepared entirely with locally available foods cannot meet the nutrient requirements (especially for iron, zinc, and fat) of children in this vulnerable age group, even when combined with continued breastfeeding, as recommended. A very large volume of nutrient-rich local foods (especially animal-source foods) would have to be consumed to meet these children’s requirements. These foods are also costly and not always available (Dewey 2009; Vitta 2012; Huffman 2013).

Supporting this research are studies documenting the importance of essential fats for children 6–24 months of age (GAIN 2011; Vitta 2012).

- **How do FCF products compare with iron drops and non-processed nutrient-rich foods?**

Studies have shown that MNPs are better tolerated than iron drops and are as effective as iron drops for treating anemia (Zlotkin 2003 and Dewey 2009). Side effects of MNPs (such as staining of the teeth) are also more common with iron drops.

¹⁷ See <http://www.gainhealth.org/wp-content/uploads/2014/05/69.-Nutritional-Guidelines-for-Complementary-Foods-and-Complementary-Food-Supplements-Supported-by-GAIN.pdf> (accessed August 13, 2013).

¹⁸ See http://www.codexalimentarius.org/input/download/standards/298/CXG_008e.pdf#sthash.qeqAgBBz.dpuf (accessed August 15, 2013).

¹⁹ See http://www.nutri-dev.org/IMG/pdf/MIYCN_Formulation_subgroup_FNB_2009.pdf (accessed August 15, 2013).

²⁰ <http://hftag.gainhealth.org/sites/hftag.gainhealth.org/files/Using%20the%20Code%20of%20Marketing%20of%20Breastmilk%20Substitutes%20GAIN%20publications.pdf> (accessed August 20, 2013).

Among many child nutrition advocates there is strong support for protecting local dietary traditions and investigating locally available foods that *potentially* can meet requirements without fortification. Research has also been conducted to compare the potential of certain FCFs with local nutrient-rich foods, in terms of capacity to meet specific nutrition requirements and lead to improved linear growth.

A study in the Democratic Republic of Congo, Zambia, Guatemala, and Pakistan compared children 6–18 months of age who consumed daily portions of meat with those consuming multivitamin fortified cereal (both foods provided by the study) (Krebs 2012). No difference was found in linear growth velocity or anemia status, but iron deficiency was significantly lower in the cereal group. In view of the rates of increased stunting in both groups (33 percent to nearly 50 percent) the researchers emphasized the need for multifaceted interventions beginning in the pre- and early post-natal periods.

One comprehensive literature review focused specifically on the potential role of fish to improve micronutrient status (Kawarazuka 2011). The study confirmed high levels of vitamin A, iron, and zinc in some of the small fish species and found that these are:

“more affordable and accessible than the larger fish and other usual animal-source foods ...and have considerable potential as cost-effective food-based strategies to enhance micronutrient intakes or as a complementary food.”

However, further research is needed on the nutritional value of different local fish, on consumption patterns of poor households, and impact of fish intake on improved nutritional status.

- **Is there a danger of FCFs displacing breastmilk?**

A major source of debate about FCF products is whether their consumption could potentially displace that of breastmilk. This question is a particularly sensitive one in developing countries, where the detrimental effects of infant formula marketing have been seen on breastfeeding practices (Singh 2010).

Recent studies have reported that there is no evidence that consumption of certain FCFs has negatively affected breastfeeding (Flax 2008; Galpin 2007; Huffman 2013). The concern is greater (and more appropriate) for LNS products, which contain energy as well as nutrients, than for MNPss. However, research to date provides some evidence that compared to local porridge, use of up to 50 g/d of LNS does not displace breastmilk (Galpin 2007; Owino 2011; Dewey 2012).

FCFs and Breastmilk — is there really a danger?

The main concerns voiced by the international nutrition community regarding FCF products include the risk of displacing breastmilk. The International Baby Food Action Network (IBFAN), a world-wide network of organizations working to reduce infant and child mortality, emphasizes that commercial companies have a fiduciary duty to shareholders, not public health interests, and therefore should not be trusted to protect consumers' best interests.

Source: IBFAN 2012

At the same time, researchers caution that product marketing, labeling, and recommended serving sizes need to be compliant with existing standards and guidelines to ensure appropriate consumption patterns for those products (Huffman 2013).

- **Is there a danger of FCF products contributing to obesity?**

The impact of maternal and early child nutrition interventions on the risk of obesity later in life has been the focus of recent research (Yang 2013; Dieffenbach 2012; Oddo 2012). Breastfeeding and timely introduction of complementary foods have been found to protect against obesity in older children and adults (Yang 2013). However, high protein intake in early childhood has been associated with higher risk of obesity. Guidelines are important to ensure that protein, sugar, and fat content (with optimal intake of essential fats) and serving sizes are appropriate. This concern is especially relevant for LNS products. “Ensuring intake of foods and supplements that promote linear growth is thus a priority to prevent obesity” (Yang 2013).

- **How is morbidity affected by consumption of FCFs?**

Information about the effect of FCFs on morbidity is mixed. A recent study in Pakistan reported a potential increased risk of diarrhea associated with consumption of MNPs (Soofi 2013). However, reviews of earlier studies did not find any increased risk of infectious morbidity and in some studies there was a lower prevalence of diarrhea (than in a control) and of fever (than among those receiving iron drops) (Dewey 2009; Lemaire 2011).

The Cochrane review determined that MNPs are efficacious in settings with different prevalences of anemia and malaria endemicity, but data are lacking on malaria outcomes (De-Regil 2011).

3.3 Consumer issues—acceptability and willingness to pay

As research moves from questions of product efficacy in controlled settings to those involving market and consumer-centered issues, two important questions for formative research are whether target audiences will find a new product “acceptable” and whether (and how much) they will be willing to pay for it. Considerable research has been conducted on both issues.

Studies focused specifically on **testing product acceptability** with potential consumers have generally reported positive results for a range of FCF products:

- Adu-Afarwuah and colleagues found that micronutrient supplements were well accepted in Ghana and had positive effects on infant iron status (Adu-Afarwuah 2008).
- LNS acceptability was assessed as high in Bangladesh and Ethiopia in 2012 (Mridha 2012; Segre 2012).
- Pelto and colleagues reported that in urban Ghana complementary feeding decisions by mothers were largely driven by perceived benefits to the child’s health, cost, and time constraints and commercial products were considered superior to traditional foods (Pelto 2011).
- Jefferds conducted formative research to inform the design of locally acceptable interventions that use micronutrient powders for home fortification in western Kenya and found that Sprinkles was highly acceptable to adults and most children; however, some children thought Sprinkles were sugar (Jefferds 2010).

Willingness to pay (WTP) studies have been conducted in many countries to evaluate the commercial viability of launching a new product. Affordability can be particularly challenging to determine for LNS products, which are typically more costly to produce than MNPs; also, target groups for FCFs are often those with the fewest resources.

- Adams and colleagues found acceptable levels of WTP for an LNS product in Ghana but willingness varied significantly with individual and household characteristics including gender, household food insecurity, and household expenditures (Adams 2011).
- Researchers assessed WTP for LNS in urban Ethiopia using a new methodology to evaluate “close-to-reality WTP” (Segre 2012). The study revealed a relatively small market for the commercial product, highlighting the need for public sector subsidies to increase coverage and stimulate greater interest on the part of the private sector.

Findings from such studies have policy implications for FCF delivery options and pricing mechanisms and the extent to which the public sector will need to subsidize interventions. Studies conducted to date also highlight the challenge of measuring true WTP and acceptability, going beyond stated intentions to actions.

3.4 Evidence of FCF program effectiveness

This review did not find any rigorous study assessing the impact, including cost-effectiveness and nutrition outcomes, of FCF distribution at scale through the private sector. However, a number of large-scale programs engaging both public and private sectors in different intervention platforms have had success of varying kinds and their lessons are instructive. The following examples demonstrate the range of approaches and partnerships being tested.

In Kenya, an effort to create a sustainable delivery system for low-cost Sprinkles to vulnerable communities involved a partnership among the U.S. Centers for Disease Control, GAIN, USAID, and community vendors belonging to the Safe Water and AIDS Project (SWAP). Women from this Kenyan self-help NGO are trained to sell items from a “basket” of different health products to their neighbors. In 2007 Sprinkles was added to the list of products for children 6–59 months of age. A two-year effectiveness study was conducted following a marketing campaign that provided special training for SWAP vendors, product “launches” (promotional materials, educational leaflets, and loudspeaker trucks) and various incentives for both vendors and consumers.

After two years, 47 percent of intervention households had received home visits from a vendor. On average, 33 percent of households in intervention villages purchased Sprinkles, with an average weekly intake per child of 0.9 sachets, although daily use had been recommended. Nevertheless, intervention children had greater improvements in hemoglobin concentrations, iron deficiency, and vitamin A deficiency than comparison subjects. The prevalence of malaria, wasting, and stunting did not change significantly in either group. Sprinkles was purchased equally across all SES quintiles (Suchdev 2012).

In China, a powdered complementary food supplement (CFS) called *Ying Yang Bao* (YYB) was developed and distributed by Biomate, a private company with a nationwide distribution network in grocery stores. YYB contains nine nutrients based on those likely to be missing in a Chinese child’s diet and also includes full fat soy flour (which adds essential fatty acids and protein). A small-scale study (2001–2004) first provided the product free to children 4-12 months of age. Among those who received YYB, anemia dropped by 45 percent in 6 months and after 6 years the group still had significantly higher IQs than the comparison group.

A public-private partnership was formed beginning in 2008 to scale up distribution. The Chinese Center for Disease Control, the Capital Institute of Pediatrics, and Biomate collaborated with a grant from GAIN to revise the product formulation, develop social marketing materials, and train health center staff on the use of YYB and the importance of continued breastfeeding. However, distribution through private sector channels first required development and adoption of a CFS standard for China—the first standard of its kind by any country. YYB was available both in grocery stores and from village doctors (who received commissions on their sales). Caregivers learned about YYB through TV programs, articles in the paper, and from health workers and pediatricians. After 8 months, 60 percent of caregivers knew about YYB and 14 percent had ever purchased it. Interestingly, recommended feeding practices (breastfeeding, a diverse diet, and consumption of iron-rich foods) were significantly greater at endline among children who received YYB. Sales were primarily to low and middle income families (Wang 2006).

In Bangladesh, Alive & Thrive is building on a program launched by Social Marketing Company, a local NGO based in Dhaka, and the Bangladeshi pharmaceutical company Renata, which marketed an MNP product through pharmacies and other health channels. To help expand access in rural areas through additional channels, A&T joined forces and supported the effort through its community-based activities aiming to improve nutrition practices and create demand for the product. Support included training of frontline health workers, organization of mothers’ fora and social mobilization events, and the roll-out of a mass media campaign.

According to an assessment conducted by the International Food Policy Research Institute, MNP uptake was higher in A&T targeted areas in 2012 compared to the rest of the country. Where sales of MNPs were integrated with other IYCF messages, all practices increased at higher rates than where messages were

promoted separately. (Impact results will be published in the future.) The program aims to reach 4 million children 6–59 months of age by 2016 (A&T 2013).

In Haiti, distribution of an FCF through the private sector was not deemed feasible for social and economic reasons; partnership was sought instead with a nongovernmental organization having strong links to communities. Sprinkles were distributed through an existing integrated health and nutrition program in which children 9–24 months of age also received take-home rations of a fortified wheat-soy blend. (More than half of children in rural areas are anemic.) A previous study had shown that donated iron-fortified supplements could not meet the iron needs of children “even when combined with heme iron-rich, local available foods...” (Menon 2007).

In this study, both take-home rations and sachets of Sprinkles were distributed at food distribution points operated monthly by World Vision (WV). Mothers learned about Sprinkles and received instructions on their use at monthly mother’s clubs meetings also organized by WV (along with other ongoing contacts as part of the regular WV community-based program). Health workers reminded mothers about correct use at the food distribution points. After two months, anemia dropped from 52.3 percent to 28.3 percent among children who had received Sprinkles, compared to an increase from 37 to 45 percent among those who had not received Sprinkles. After an additional seven months, (in which no children received Sprinkles), the proportion of children in the intervention group who had anemia dropped further to only 14.3 percent. Younger children benefited more than older children (Menon 2007).

Further lessons from these and other programs are discussed in Section 5.

4. Barriers and challenges to effectively engage the private sector in improving access to FCF

4.1 Underlying lack of trust between sectors

According to Singh and colleagues, the lack of greater effectiveness to date of engaging the private sector in improving child nutrition is “closely linked to the issue of trust, the lack of which is a key barrier along the critical path” towards successful partnerships (Singh 2010).

Mistrust between the public and private sectors first became intense beginning in the late 1970s with Nestlé’s aggressive promotion of breastmilk substitutes, especially in developing countries. The international mobilization and boycott against Nestlé products, and denunciation of other food and beverage companies, continues to fuel controversies to this day.

According to the 2013 *Lancet* series on maternal and child nutrition:

“Efforts to realize [the potential of private sector engagement] have been hindered by a scarcity of credible evidence and trust. Both of these issues need substantial attention if the positive potential is to be realized.”

Source: Gillespie 2013

However, the debate has evolved. There is now quasi-general agreement about engaging the private sector in manufacturing products for *emergency situations*. Population-based interventions (such as national fortification of staples foods) have also generally met with less resistance. Involving commercial actors to increase *access to complementary foods* remains the most controversial and challenging area for collaboration.

Mistrust today often centers on questions of motivation and priorities—the interests of shareholders vs. the interests of target populations. Fears have also arisen regarding the potential for FCF products to undermine both optimal feeding practices and traditional foods for older infants and young children. Besides general concerns about the efficacy of products (as discussed in Section 3.1), fears continue to focus on:

- *Possible threats to continued breastfeeding for children up to 24 months of age.* Products that are too dilute or contain too much energy or are consumed in too large quantities could in theory undermine consumption of breastmilk.
- *Possible threats to local traditional foods and traditional skills.* Products that contain too much energy or are consumed in too large quantities might entirely replace local foods in the child’s diet. As one advocate for local foods put it, “the availability of processed products might damage skills and autonomy at household levels; it might create dependency on industrialized foods and lead to the destruction of food skills ...” (Palmer 2009).
- More recently, the private sector has also been accused of contributing to the obesity epidemics and there is a fear that FCFs may become part of this problem (Yang 2013; Dieffenbach 2012; Oddo 2012).

Is there common ground?

A survey of present and past members of the United Nations Standing Committee on Nutrition regarding their views of private sector engagement in nutrition highlighted the seriousness of the trust issue:

“... participants believed [in] the incompatibility between public good and business-oriented aims inherent in commercial organizations. These led participants to question the rationale for private sector engagement and the impact such partnerships might thus have on achieving public health goals. Very specifically breast-milk substitute companies were repeatedly mentioned.”

Source: Gavin 2011

Differences of opinion on these and other issues exist at every level within the nutrition community. This lack of consensus was mentioned as a key barrier to public-private engagement by all interviewees. While questions may stir up healthy debates and stimulate needed research, they can also lead to tensions and sub-optimal programmatic choices (see box).

4.2 Different goals, different ways of working, and different types of risk

Differences in the ways the private and public sectors conduct business (irrespective of the product being promoted) create tensions for all public-private partnerships in the health area.

The two sectors differ in their basic missions and matrices of success. Time horizons vary (from quarterly reports and adjustments for corporations to up to five-year projects for a non-profit project). The private sector develops products and services based on an iterative approach and trial and error, whereas the public sector tends to lay out a full-fledged strategic approach based on available evidence and then implement it at a large scale over a projected period of time. Finally, measurement, monitoring, and reporting requirements differ, leading the private sector to express concern about bureaucratic requirements attached to partnering and working with NGOs and the government (Saadé 2001; AED 2005).

Together with a history of mistrust in the nutrition area, these differences create higher than usual risks for engagement between the sectors on FCFs.

“Public sector organizations are sometimes reluctant even to engage in dialogue with companies, possibly out of concern that engagement might be misinterpreted as endorsement; that constituencies will conclude that they are privately profiting in some way from the relationship; or that the risks of engaging outweigh any perceived benefits of the private sector’s contribution to improving the nutrition of the world’s impoverished infants and young children” (Singer 2011).

For the private sector, there are also risks:

“Private sector firms are reluctant to enter developing world markets for complementary foods because they worry they will be attacked for undermining breastfeeding and this will expose them to unwanted publicity and hurt their brand, as well as potentially their license to operate, in established markets” (Singer 2011).

4.3 Weak policy, regulation, and monitoring environment

The still-evolving policy environment for FCFs makes it especially challenging for actors with different interests to reach consensus on correct mutual action.

Both the literature review and stakeholder interviews conducted as background for this document highlighted the urgency of developing FCF standards and guidelines in different areas by international organizations and UN agencies:

A legacy of mistrust and its effects on program decisions

In Bangladesh, severe rates of stunting—together with research showing affordable local foods cannot meet nutrient, fat, and protein requirements—provided a strong case for introducing an LNS product. The Alive & Thrive project (A&T) aimed to engage the private sector in a partnership to increase access to an affordable FCF product through sustainable distribution systems reaching poor families in particular. However, A&T was aware of past incidents involving demonstrations and strong opposition to private sector engagement in the South Asia region due to experiences with infant formula. Concerns about the depth of such sensitivities were quickly confirmed in Bangladesh. This convinced the A&T team that working on the launch of an LNS product could potentially jeopardize other A&T activities. MNPs did not pose the same level of risk because they were not perceived as having the potential to replace breastmilk. The project subsequently worked with partners to scale up access to an MNP product.

Source: Alive & Thrive 2013

“Appropriate private sector involvement in the IYCF arena requires the existence and enforcement of clear and agreed upon standards for engagement—such standards must define appropriate composition as well as marketing practices” (Badham 2013).

In addition, international organizations and civil society (including UNICEF, GAIN, A&T, and R4D) all advocate for better and clearer international and in-country regulations for the *promotion and labeling* of FCF products.

Private sector companies are often accused of not complying with the International Code for Marketing of Breast-Milk substitutes.²¹ At the same time, interviewees mentioned problems interpreting the Code. Stakeholders highlighted the need to clarify definitions, the need for a more comprehensive and further clarified Code, and for development of a separate Code for FCF products (or the release of more detailed guidelines by WHO on these products). Many interviewees mentioned that the Codex does not provide enough details and leaves too much room for interpretation.

Products, labels, and the ability of consumers to make sound decisions

Inadequate or misleading product labels can confuse consumers and also create mistrust of private sector motives.

Roos and colleagues recently assessed the presence of anti-nutritional compounds in FCF products on the market in Europe and emerging markets. Their study confirmed the presence of a high level of some of those compounds and called for stronger monitoring of declared and actual levels of mineral fortification of processed foods. They also found that in many emerging markets, product content often did not meet the levels of iron, zinc, and calcium declared on their labels.

Source: Roos 2013

Confusion exists about the definition of breastmilk substitutes as opposed to FCF products and in how the Code or other guidelines and regulations apply to the different products. Compliance by food manufacturers with international norms is challenging and confusing, leaving room for less ethical companies to go around good business practices.

Lack of clear global guidelines trickles down to the country level where there is a wide variety of legislation; at the local level, regulations may not be harmonized and can often be in contradiction with the Code. Some countries have no regulations regarding the marketing of fortified food targeting children under two years of age. Others disallow any such marketing (including South Africa, Tanzania, and Kenya).

For existing regulations relevant to FCFs, monitoring is unsystematic and enforcement is weak. Interviewees mentioned that checks are sporadic and only anecdotal for both product content and marketing.

²¹ More information at www.ibfan.org (Accessed on August 16, 2013.)

5. Challenges and lessons learned in the systematic development of effective FCF interventions

5.1 Challenges common to new health products—and special considerations for FCFs

Interventions introducing new health products must be evidence based and systematic. This is true for health products of all kinds; but FCF interventions involve special challenges at many steps.

The programs reviewed for this study, even those launched as pilots, were designed with a view toward eventual **scale, equity** (ability to reach the bottom of the pyramid, or BOP), and **sustainability over the long term**. Few, if any, met all of these criteria, but implementers have reflected on their efforts and barriers.

This section reviews some of these challenges and lessons in terms of the basic principles of FCF intervention design, implementation, monitoring/evaluation, and financing.

5.1.1 Plan according to the relevant policy environment (and advocate as appropriate)

Legislation (and restrictions) on FCF products vary by country and may affect product strategies. The challenge is especially great when the proposed FCF falls in a category for which no quality standard yet exists.

In China, development of YYB could not go beyond the research stage (when it could be distributed as a “study” product) until stakeholders were able to advocate for creation of a national complementary food supplement standard. This delayed launch almost one year (Sun 2011).

“Having governmental standards and related regulations in place for appropriate composition and marketing and being able to meet them is a requirement for initiating a PPP project and sustaining access by low-income households through markets.”

Source: Sun 2011

Policies can also change mid-project, creating barriers for scaling up. In Kenya, after two years of implementation, the SWAP-Sprinkles program was discouraged from expanding because of changes in international iron supplementation policy. The revised policy recommended that in malaria areas, children under two years of age not receive iron without first being screened for deficiency (Suchdev 2012).

5.1.2 Design products for specific populations and contexts

Interventions need to be tailored based on the conditions of each country or even community. Moreover, in a given community, there will be no single appropriate “solution” to ensure a nutritious diet for 6–24 month old children. Research into current practices, including food preferences and taboos, and local options is critical (Bryeron 2010).

“...there is not a one-fits-all or even an either/or situation when it comes to appropriate complementary feeding. There are different access routes to obtaining the appropriate complementary diet and this makes the provision of and access to truthful, objective, consistent, and complete information about appropriate feeding practices and products crucial” (Badham 2013).

Among recent tools developed for conducting in-depth nutrition and market assessments, many through cross-sector efforts, are the following:

- *OptiFood* is an initiative started in 2010 by the London School of Hygiene and Tropical Medicine, the USAID-funded FANTA Project, WHO, and Blue Infinity (a software developer). Using linear programming software, OptiFood provides scientific evidence on how best to improve children’s

diets at the lowest possible cost using locally available foods. It identifies nutrient gaps and suggests food combinations the local diet can fill—or come close to filling. It also helps identify the limits of local foods in meeting nutrient needs and tests strategies for filling remaining nutrient gaps, such as using fortified foods or micronutrient powders that mothers mix into infant or young children’s porridge.

- Focused ethnographic research (or FES) is a research approach used to gather information on product choices, acceptability, and markets. GAIN commissioned studies in Ghana, South Africa, and Afghanistan using an innovative FES methodology to help improve the diets of children 6–24 months old (Pelto 2013).

5.1.3 Position, package, and label the product — (and pretest, pretest)

Every new product must be “positioned” in a category that consumers value and that allows for effective marketing by selected distributors (e.g., through the health system or grocery stores).

Packaging must convey this *product position* and *appropriate branding* and must be convenient to the target group (e.g., small quantities are more likely to be purchased by the poor and individual sachets help ensure proper doses). *Labeling* must provide accurate information about nutritional contents and clear instructions (often via graphic representations for low literate consumers) so that serving size and preparation (such as dilution) do not undermine breastfeeding (Hoffman 2012).

“Packaging should be culturally appropriate, clear and self-explanatory with regard to content, target group, and methods and frequency of use” (Kodish 2011).

Even a “free” product can fail if these elements are not all carefully *pretested*. A program distributing MNPs (called *MixMe*) in a Kenyan refugee camp designed packaging that showed a one-child family having a meal. The picture was interpreted by recipients as promoting family planning methods; further, the sachets inside looked similar in size and material to that of local condom brands. Rumors quickly circulated that the camp was distributing contraceptives. In addition, the new commodity was not distributed by the usual trusted health providers in the camp, and these providers in turn were not prepared later on to deal with community members’ questions (Kodish 2011).

Sweet and colleagues have designed a helpful tool “to be used by manufacturers, distributors, and national governments for assessing and guiding appropriate labeling of processed complementary foods.” It can also be useful in the design stage to ensure packages are labeled appropriately (see box).

A checklist/tool to ensure accurate and effective labeling

Sweet and colleagues designed a checklist of questions (and specific criteria to help in answering them) for the evaluation of complementary food product labels. The tool helps “operationalize” guidelines provided in the MIYCN Working Group’s Draft Guide for Marketing Complementary Foods. Field-testing of the tool in South Africa found it to be useful, but results also highlighted low compliance with the International Code of Marketing of Breast-Milk Substitutes in that country. A total of 160 labels from 35 manufacturers were assessed and not one was compliant with all of the recommended labeling practices. Only 65 percent specified an appropriate age of introduction; 75–93 percent did not provide enough information to determine if a daily ration would exceed the recommended energy intake from complementary foods for a breastfed child.

In addition, the survey found that all complementary foods sold by companies that also sell infant or follow-up formula on the South African market were labelled in a way that also promoted the company’s formula products.

Source: Sweet 2012

5.1.4 Design distribution strategies for scale, equity, and sustainability

Designing strategies and finding appropriate partners to reach all priority audiences—particularly rural target groups at the bottom of the pyramid—are the most difficult challenges for any health product that cannot be provided “for free, forever.” Moreover, institutional purchase and delivery of FCFs (or any health product) at no cost on a large-scale can discourage market entry by other partners who could reach different segments of the population (AED 2005).

This challenge has spurred the piloting of innovative distribution efforts in different contexts, leading to some failures as well as a few successes. Segmentation and tailoring of distribution strategies for urban and rural audiences is common. “Urban markets appear easier to penetrate through commercial channels and provide opportunities for sustainability” (Bruyeron 2010; Bahl 2013). The Nutridev project had separate urban and rural strategies in all three of its program countries, and relied heavily on small restaurants and door-to-door sales in some vulnerable communities (Bruyeron 2010).

In Mongolia, Haiti, Kenya, and Bangladesh, donors worked with nongovernmental organizations who have a presence in vulnerable communities to deliver products either from central distribution points or door to door. In China, a segmented strategy reached target groups through both the health system (with commissions given to doctors) and through retail grocery outlets. In many of these programs, those responsible for reaching the poorest populations had multiple responsibilities, reached a variable percentage of their customer base, and required ongoing motivation to keep products moving (Sun 2011; Suchdev 2013).

Market maturity in a country affects opportunities. A&T found that in Ethiopia companies in general lacked experience and skills in commercial distribution. Large companies were preoccupied with emergency food programs and reluctant to shift their focus from the reliable institutional market. Smaller companies were eager to join in a partnership but would have required extensive skills building and financial support. In Viet Nam, the market appeared more mature; the majority of the population had regular access to commercial goods and exposure to media campaigns. However, because of the intense competition landscape, distribution costs for launching a new product would have been high (A&T 2013).

Increasing access to the poor depends on context

The Bill & Melinda Gates Foundation and USAID have commissioned several MNP and LNS market research studies as well as a review of past strategies and success stories. Those assessments explore manufacturing options and distribution channels in several countries and include a list of potential mechanisms to be used *to increase access to the most vulnerable* based on local context.

Specific country assessments include Nepal (Magnani 2012), Ethiopia (Federal Ministry of Health of Ethiopia 2010), and Niger (Nutraset 2009).

Stakeholders agree on the need for integrated marketing strategies with different distribution systems and levels of subsidy for different target groups. Ideally such an approach would also allow for cross-subsidy between a higher and lower priced product. However, no FCF program has reached this level of complexity or sustainability.

“All distribution channels (commercial, subsidized and free ones) should be leveraged for maximum nutrition impact” (Bahl 2013).

5.1.5 Support demand and behavior change activities—initially and over time

The need for *sustained* promotional activities and the high associated costs are common themes in the programs reviewed. Sharing of best practices has been limited however.

“A behavior change communication strategy, which includes promotion of MNPs, is needed to create demand and support coverage, adherence, and appropriate use (HFTAG 2011); however, there is virtually no information available on the minimum levels of intensity of these strategies” (Suchdev 2013).

At the same time, many principles of effective, strategic demand creation and behavior change are known. These include:

- Aligning promotional messages with what mothers value
- Following standard best practices (consistent messages integrated across multiple media)
- Paying attention to influential secondary groups

The Nutrived program in Burkina Faso found that “the main factor limiting sales volume seems to be the capacity to persuade fathers, who manage the bulk of family funds, to spend money on special foods for children” (Bruyeron 2010).

FCF interventions are also tasked with promoting the primary product *as part of a wider set* of appropriate infant and young child feeding practices. According to Dewey, “Marketing of such products should also be used to reinforce continued breastfeeding and recommended complementary feeding practices, such as provision of a diverse diet” (Dewey 2009).

While multiple messages may seem onerous, holistic child nutrition strategies have in fact been effective. In both Bangladesh and China, evaluations showed that use of promoted FCFs was associated with improvements in both breastfeeding and infant feeding practices (A&T 2013; Sun 2011).

Some stakeholders have also emphasized the wider responsibility of nutrition campaigns to educate the public about what constitutes good nutrition and that not all choices in the market are equal.

“The promotion of complementary food products such as multiple MNPs or lipid-based nutrient supplements should inform families of the nutrient content of these products compared with other foods of limited nutritional value that are heavily marketed to the general population and are often purchased by the poor to feed to infants and young children (e.g., biscuits, instant noodles, chips)” (Huffman 2012).

Some have proposed innovative marketing approaches for future programs. But care must always be taken that these are both sensitive and ethical (see box).

Parents can know but forget....

In Kenya Sprinkles use declined over a 2.5 year period, although product awareness remained high. Attendance at Sprinkles promotional launches did not change, but there was a reduction in ever receiving a promotion item. There was also an increase in the barrier, “parents forgetting to give Sprinkles.” Program managers say that, “If market-based distribution of Sprinkles is continued and/or taken to scale, it will be important to annually budget for recurrent costs of social marketing and promotions to ensure that Sprinkles remain affordable.”

Source: Suchdev 2012a

The fine boundaries for innovative and ethical marketing

One stakeholder mentioned the idea of adopting a common brand for healthy products around the concept of life cycle. The brand would follow products for pregnant women, to those for children 6–24 months, to older children and adolescent girls. This would increase the size of a market significantly (going beyond the niche 6–24 month market) and enable spreading marketing and promotion costs among diverse targeted populations. The stakeholder mentioned that this aligns with *The Lancet* nutrition series support for a life cycle approach to improve nutrition practices.

At the same time, participating in a “broader brand” can be hazardous for an FCF product. Consumers must not be confused about the age group targeted by a specific product, and even similar designs and color schemes on packaging by manufacturers of different products has been discouraged for this reason.

5.1.6 Monitor and adjust strategies, evaluate results

Monitoring of both purchase and actual consumption of FCF products by beneficiaries is necessary to confirm access, acceptance, and correct use. Purchase (or pick up) of a product does not always translate into consumption (see box).

Monitoring can also uncover issues with a new product that are completely unexpected. In China, families were instructed to mix YYB with a child's food. But the program found 62 percent of caregivers prepared it with boiled water (which could have implications for consumption of breastmilk) (Sun 2011).

Analyses of product "doses" consumed, along with associated nutritional outcomes, are continuing to help inform future program design. iLiNS has used an "adapted interactive 24-hr dietary recall method" in Malawi to compare energy intakes between infants receiving LNS and those not receiving LNS. These dietary studies will also provide insights on the nature of any displacement of other foods (e.g., porridge) by LNS.²²

Monitoring to uncover and fix problems

In the Kenya refugee camp where MNPs were distributed with monthly food rations, multiple waves of monitoring discovered that uptake of MNPs at the distribution points had been dropping 10 percent each month from a high of 99 percent. Anecdotal reports also indicated that many refugees who collected the sachets at the distribution points were discarding them. Because of this discovery, a mid-project qualitative assessment was conducted to understand the causes of low acceptance. A social marketing effort, including a house-to-house campaign, was launched to help improve uptake.

Source: Kodish 2011

The National Institute of Health (NIH) is undertaking interesting research to define key biomarkers that are able to single out a product's impact (J. Badham, Badham consulting).

Evaluation of project impact is critical at this stage of FCF programming. Controls are particularly hard to design. One promising method is to structure interventions using a phased-in approach, to enable the de facto presence of a control group (Kay Dewey, UC Davis).

5.1.7 Finance with a long-term view

The bottom line for FCF products is a challenging one; the market will always be limited by the nature of intended beneficiaries and profit margins will always be small. So far, very few FCF products have been profitably marketed to low-income customers. (The only example this review found of a commercially viable product targeting low-income groups, without an anchor institutional customer, was Incaparina, a fortified flour for home use that has been marketed in Guatemala for the past 50 years.)²³

The A&T experience showed that private sector engagement generally required significant time and up-front financial investment from the public sector. In Ethiopia, because of the low maturity of the retail FCF market (and the well-developed institutional market), the private sector had few incentives to launch a new product without a significant contribution from the public sector. Manufacturers needed assistance with demand creation, promotion, and distribution activities. In Viet Nam, to reduce the commercial risk of launching an FCF product, the private partners expected A&T to cover some of the marketing promotion and distribution costs (A&T 2013).

Interviewed stakeholders noted, however, that contributions from the public sector should only aim to provide the initial push for private sector engagement. Sustainability requires that interventions and "product ownership" be left in the hands of the private sector. As markets mature and demand increases, commercializing an FCF product will become more profitable. Production and distribution costs will also decrease through the effect of economies of scale. The need for public sector support will diminish. This

²² More information at <http://www.ilins.org/ilins-project-research/insights> (Accessed August 15, 2013).

²³ More information at <http://www.incaparina.com> (Accessed August 15, 2013).

gradual process can take time, however, depending on the local context. The A&T team underlined that a faster exit of the public sector was likely to happen in Viet Nam compared to Ethiopia.

The financial challenges of launching new products via public-private partnerships have been faced by other health interventions, and models developed for these may be useful. The “Full Market Impact” model developed to engage the private sector in improved access to public health products, for example, looks at ways of “priming the market,” with a long-term goal of private sector sustainability within a segmented market (AED 2005).

5.2 Lack of initial/perceived business case for FCF in developing countries

It is not surprising that perception is strong throughout both the private and public sectors that marketing FCF products to low-income populations is challenging. Common themes expressed by interviewed stakeholders include:

- *FCF market is a niche market with a relatively small size given the restricted target age for products and low margin.* Private sector partners often do not see any business case for investing in a new product for such a small percent of the population—all the more so in countries (such as Ethiopia) where the institutional market has been historically large and with high margins.
- *FCF messaging is complex as opposed to the relatively simpler messaging of exclusive breastfeeding.*
- *Because FCFs target infants from 6 to 24 months of age, there is no room for trial and error in product composition or marketing;* this represents a significant risk for the private sector. It also prevents the public sector from investing in solutions at scale and more broadly supporting related private sector activities. Filling current evidence gaps is needed in order to catalyze increased investments by both sectors.
- *Demand for FCF products in developing countries is generally weak* due to significant knowledge and education gaps regarding the nutrition needs of children 6–24 months of age. Purchasing power is also generally very low. The *willingness to pay (WTP)* of middle- and low-income populations is sometimes below product manufacturing costs for some products (e.g., LNS).
- *Minimum market visibility requires continuous demand activities and exposure to consumers.* However, in some countries, demand generation is limited by strict local regulations. Some East African countries prohibit any promotion of products targeting children under two, preventing any serious private sector investment.
- *Going beyond urban areas and reaching poor rural populations is expensive due to lack of infrastructure, nutrition awareness, and sustained product demand.* To reach a significant part of the population, distribution must be segmented for target groups receiving commercial, subsidized, and in some cases free products. However, few initiatives have tested such an approach and few lessons have been shared.

Strategies for improving affordability

The Micronutrient Powders Access Project, funded by the Bill & Melinda Gates Foundation and implemented by Results For Development (R4D) in collaboration with the Micronutrient Initiative, recently undertook an “extensive landscape analysis of both supply- and demand-side challenges and of opportunities of delivering MNPs to infants and young children 6–24 months.”

Recommendations for strategies to improve affordability include “demand-side (e.g., vouchers, credit, saving schemes, social cash transfer programs) and supply-side interventions (e.g., reduction of unit prices (smaller sizing, lower-cost inputs), subsidies for marketing costs, reduction in shipping, transport and taxation costs).”

Source: Bahl 2013

5.3 Challenging environment for private sector growth (local and mid-sized companies)

The relative advantages of working with a multinational company vs. a local/mid-sized company (or companies) vary by country. This theme re-appears in the literature from different perspectives.

One view is that:

“Local suppliers should be supported only when their presence can improve political and consumer acceptance and/or create efficiencies. Advantages of working with global manufacturers include economies of scale and increased quality control” (Bahl 2013).

The assumption is that larger, more experienced firms will be more reliable. However, working with multinationals is not always smooth. In Kenya, the supply of Sprinkles was interrupted twice in one year “due to the time-consuming process of ordering and shipping from a foreign producer, coupled with expiration of the sachets. Complicated importation procedures and import taxes were also barriers” (Suchdev 2012).

On the other side, Badham and others call for more activities to empower regional and local players, including women’s groups and small and medium enterprises (Badham 2013). In many cases it is difficult to reach the bottom of the pyramid without engaging smaller local groups. Some donors also believe there are strong development arguments to be made for strengthening such partners. (One example is the Clinton Health Access Initiative food producers program mentioned in Section 2.)

However, a significant barrier mentioned repeatedly by interviewees is the challenging business environment in developing countries for local and regional players. This limits partnership options and constrains programs specifically wishing or needing to collaborate with smaller private sector partners. Barriers include:

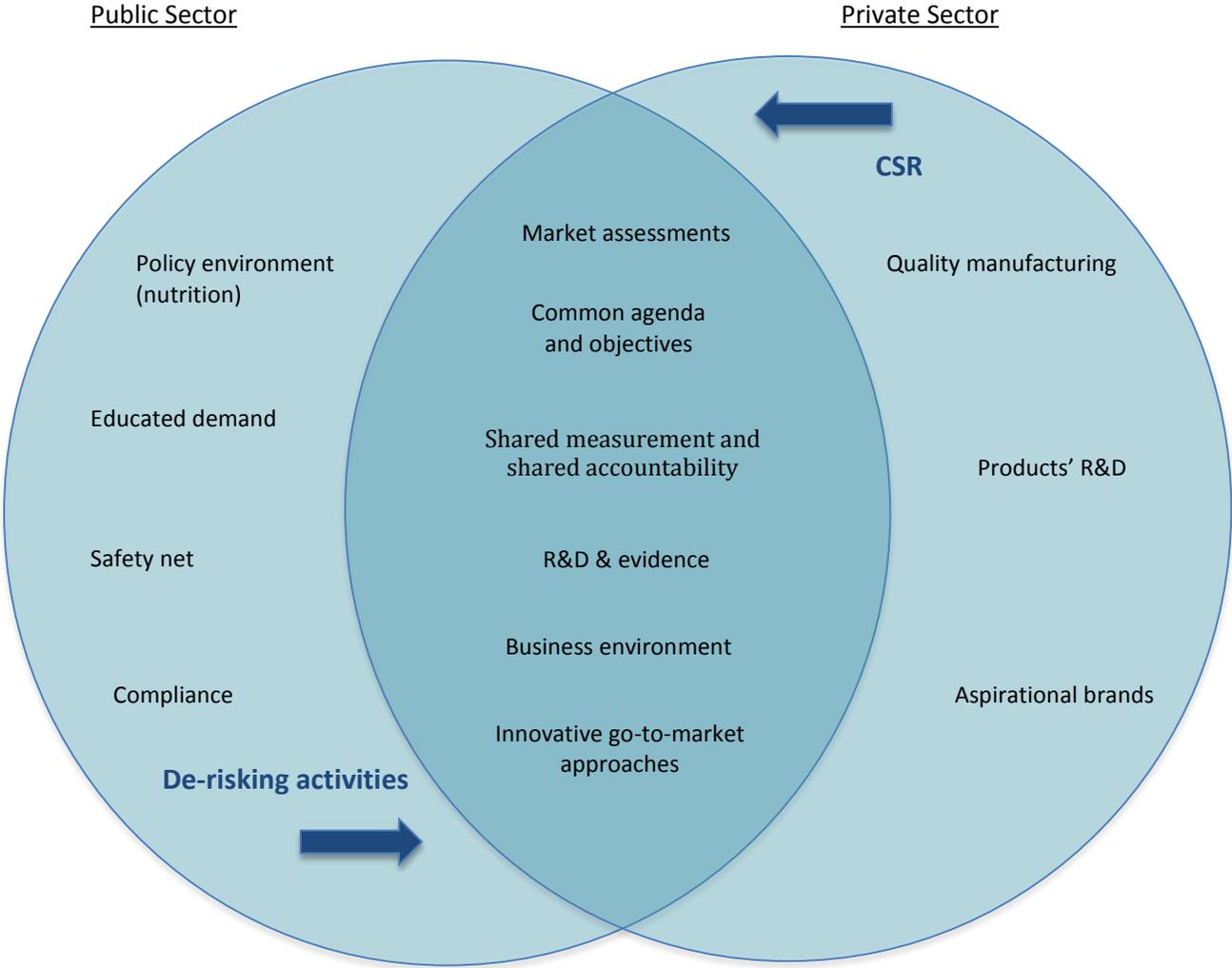
- *Lack of access to affordable working capital by private sector companies.* FCF products have a long working capital cycle of three to six months on average from the time ingredients are purchased and clients pay for the product. Banks usually provide loans to purchase equipment as those can be used as collateral, but are reluctant to fund working capital, if only at very high rates.
- *Unfavorable fiscal policy* that can be detrimental to product affordability. Interviewees mentioned the recent tax increase for milk powder in Kenya and the impact on FCF prices.
- *Weak supply chain and ineffective value chain.* Sourcing quality products locally is a constant challenge. This includes the lack of availability of quality peanuts and the problem of aflatoxin in East Africa, scarcity of quality and affordable milk powder, and the challenge of finding quality oil (and peanuts) in Ethiopia, for example (Engidu Legesse, Guts Agroindustry).
- *Competition from multinational companies:* These companies have extensive resources available for demand generation and on-site marketing activities. Within such an environment, it is very difficult for regional and local players to launch a new product and be able to get enough visibility, shelf space, and market share.

The challenges associated with the FCF market highlight the need for close collaboration between the public and private sectors. The private sector considers the commercialization of FCF products a risky endeavor because of a weak business case and also the reputational risk associated with starting any FCF-related activity. Without commitment from the public sector to increase clarity of existing guidelines and regulations, fund generic FCF promotion, and support distribution to lower-income areas to increase market size, food manufacturers are reluctant to commit. Without establishing a safety net at the bottom of the pyramid, the public sector will not meet its social objectives. Both sectors have an incentive to extend the initial commercial market beyond the traditional urban and peri-urban channels. However, this will involve serious financial and technical commitments from both sectors.

6. Roles of the different sectors and principles—and lessons—of engagement

6.1 Roles of respective partners in a PPP

Clarification of roles between the public and private sectors is important to avoid misunderstandings and leads to more efficient collaboration and transparency with the public. Roles will vary according to program context and will evolve over time. However, the figure below shows areas of greatest strength for the different sectors and where these may overlap.



The public sector (left circle) is responsible for protecting public health and for ensuring services are equitable and affordable. In a PPP for health, the public sector is responsible for creating an enabling environment for better private sector engagement.

The private sector (right circle) roles typically include manufacturing quality products according to standards, complying with regulations and guidelines, creating and promoting aspirational brands, developing innovative go-to-market approaches, and conducting product R&D and market assessments.

Depending on the context, responsibilities of one sector must be supported by the other. Private sector corporate social responsibility funds can help support a generic awareness campaign or contribute to a safety net. Similarly, the public sector can provide incentives to the private sector to launch a new product and services by reducing associated risks. This might include conducting market assessments and willingness-to-pay studies, supporting technology transfer, guaranteeing a certain volume of institutional sales, or subsidizing some of the upfront marketing and product launch expenses.

Shared responsibilities (overlapping circles) indicates activities to be conducted in close collaboration and with shared responsibilities by both sectors. These include defining a common agenda and objectives, agreeing on shared measurement and shared accountability, and conducting R&D and building evidence regarding products and interventions.

6.2 Focus on roles of the public sector

To strengthen engagement, this review focuses primarily on how the public sector can better carry out its own roles, including those it may share with the private sector.

- **Strengthen and enforce nutrition policy environment at global, regional, and local levels.**

The public sector has a strong responsibility to create an enabling environment for FCF interventions and for cross-sector engagement. The 2013 *Lancet* series on nutrition defines enabling environment as: "...political and policy processes that build and sustain momentum for the effective implementation of actions that reduce under-nutrition...." (Gillespie 2013).

Every PPP also needs a high-level champion to advocate for the program within the government.

- **Monitor country nutritional status as well as complementary feeding practices.**

Data collected from those studies inform the selection and administration of FCF products as well as the need for promotion and behavior change communication activities. Public sector actors collaborating in and supporting such studies now include national governments, UNICEF, USAID, GAIN, and A&T.

- **Conduct feasibility studies with emphasis on vulnerable populations.**

The public sector has often funded market assessments to evaluate the feasibility of launching new FCF products, and to understand whether and to what extent public sector subsidies would be needed to expand access and ensure equity. Those studies generally evaluate the size of the commercial market, as well as the percentage of the population that will be hard to reach.

- **Improve product access to targeted and most vulnerable population.**

The public sector has a responsibility to help expand the size of the market to ensure access to vulnerable populations. This includes leveraging institutional channels as necessary to build a safety net for those who cannot pay. Part of this challenge is a responsibility to “think cross-sector,” which may include leveraging agriculture as well as health distribution channels, based on their widespread population outreach.

- **Ensure program messages are integrated and consistent with local feeding recommendations.**

Developing a demand creation strategy is a joint responsibility of the public and private sectors, and expertise is more likely to be available from commercial marketing firms. However, the public sector must ensure that messages and materials are consistent with recommended feeding practices and are integrated into ongoing nutrition programs in the area.

Model for spurring innovation in nutrition and business

The MarketPlace for Nutritious Foods, led by GAIN in Mozambique and Kenya, works as an innovation accelerator. It provides a “forum for sharing ideas, building knowledge, and overcoming market and policy challenges that hinder the growth of a nutritious agriculture value chain.” In addition to directly supporting and mentoring entrepreneurs through technical assistance and seed funding, it also aims to develop a better environment for nutrition-sensitive business growth.

In 2013 over 300 innovative ideas that could enhance the nutritional quality of foods along the agricultural value chain were submitted for business planning awards.

¹ Read more at <http://www.gainhealth.org/knowledge-centre/marketplace-nutritious-foods-business-awards-announced/> accessed on November 20, 2013

- **Address business challenges of regional and local actors.**

Another priority is to create an enabling business environment for the private sector to develop and grow. This includes:

- Advocating for lower taxes on key products and supplies
- Facilitating access to quality and affordable ingredients, especially nutrient mix, milk powder, and peanuts
- Building capacity to improve product safety and production quality (including the adoption of Good Manufacturing-Practices and Good Distribution Practices standards)
- Improving access to affordable working capital
- Supporting skills development (through vocational training, technology transfer, and other capacity building initiatives)

- **Improve local manufacturing capacity through technology transfer and quality assurance.**

International organizations and other actors have contributed time and resources to strengthen production capacity of regional and local manufacturers through technology transfer and quality assurance training. For example:

- Over the past ten years, UNICEF has worked on developing a supplier base for fortified food in programmatic countries and significantly increased the number of production sites (for fortified food throughout Asia and Africa).
- GAIN partners with local players to produce and deliver FCF products.
- Nutriset works with a network of ten manufacturers in developing countries.

6.3 Principles and processes for engagement

An abundant literature describes principles of public-private partnerships and step-by-step processes for engagement (whether to promote handwashing with soap, produce and deliver oral rehydration salts plus zinc, improve access to point-of-use-water treatment products or insecticide-treated nets, and so forth) (Slater 1996; Saadé 2001; AED 2005; POUZN 2011).

In 2011, the Global Compact published a guide for effective UN-business partnerships (see box). It recommends extensive dialogue for overcoming mistrust and recognizing differences in incentives inherent to the UN and businesses. It lays out a life cycle for effective partnerships that includes exploration, design, negotiation, and implementation—with key steps in each phase.

Hanleybrown and colleagues suggest that three conditions must be in place before launching a PPP: “an influential champion, adequate financial resources, and a sense of urgency for change” (Hanleybrown 2012). They also highlight five conditions for partnership impact: “a common agenda, shared measurement, mutually reinforcing activities, continuous communication, and backbone support by a separate organization to coordinate partners.”

Life Cycle of Effective Partnerships

1. Find the most suitable partner
2. Seek wide buy-in and depoliticize the project
3. Develop a clear governance structure before proceeding
4. Create a single monitoring & evaluation framework focused on partnership impact
5. Forecast future partnership resources and conditions
6. Plan for sustainable funding and impact
7. Design partnership for scale
8. Initiate partnerships with a pilot phase
9. Create mechanisms for regular assessment
10. Create a process for knowledge management

Source: Global Compact 2011

Identify a neutral broker for the partnership.

The need for a neutral facilitator—variously called a catalyst, a focal point team, or “backbone organization,” is universally recognized.

“...Creating and managing collective impact requires a separate organization and staff with a specific set of skills to serve as the backbone for the entire initiative (...) The expectation that collaboration can occur without a supporting infrastructure is one of the most frequent reasons why it fails” (Kramer 2009).

The facilitating organization is typically a donor or an NGO whose task is to remain “neutral,” but who is usually selected and funded by the public sector. This group ensures continuous and transparent communication and moves the process forward. Common principles/steps in this process are described below.

Adopt shared principles of ethics to help unite stakeholders around common goals (Singh 2010). These principles can be discussed up-front to establish common ground and can be laid out in a partnership agreement.

Define common agenda and objectives. In addition, Hawkes and colleagues highlight the importance of clarifying *underlying interests*—which are different from partnership objectives (Hawkes 2011). They suggest there is no true partnership “if underlying interests of each partner are not equally serviced.”

Agree on process/rules of governance before the partnership is made public. These may be written into a formal Memorandum of Understanding. The SUN Business Network toolkit recommends three key actions for partnership *governance*:

- Create common understanding, including clarifying roles, responsibilities, and resources and acknowledge differences in culture and organizational set-up
- Ensure leadership and organizational engagement, including continuous stakeholders’ management and upfront agreement on external communication guidelines

- Demystify profit-making market-based solutions (SUN Business Network Toolkit 2013)

Agree that agreements will be transparent and public. Laurence Haddad calls for PPP transparency as a key factor to improve governance and effectiveness (Haddad 2013b).

Incorporate strong monitoring and evaluation in the partnership process from day one. Monitoring should enable effective partnership management and strategy adjustment and allow for discussion of potentially controversial issues before problems escalate (Gillespie 2013; Huffman 2013; Badham 2013; Sun Business Network 2011; Hanleybrown 2012). For PPPs generally, Hanleybrown mentions the importance of having a small but comprehensive set of indicators.

An important lesson is that trust develops as a partnership is exercised, through joint activities.

Only concrete experiences can move partners from a *willingness to trust* to actual *trustworthiness* (Billie-Jo Hardy, ESC Program for Global Health). One way to encourage the development of trust is to engage in joint activities that are less sensitive than improving

access to FCF products. (For example in A&T, the public health sector in Viet Nam became more amenable with private sector involvement in nutrition as a result of their experiences with PepsiCo in designing an award-winning campaign to promote breastfeeding) (A&T 2013).

Reducing mistrust through structured dialogue

Various tools have been proposed for improving communication across sectors in nutrition. Parsons and colleagues developed a film-based quantitative research method called “brokered dialogue.” They describe it as “a method for promoting respectful interactions among those with seemingly divergent views...”

Ezezika and colleagues describe how a social audit (via the method of “Ethical, Social, Cultural and Commercialization auditing”) of potentially controversial projects could help review projects in a more systematic way and increase transparency and accountability.

A model outside of nutrition is the Ethical Trading Initiative set up to improve sub-standard labor conditions. Singer suggests that, “The sweatshops debate could serve as a model to promote cooperation and trust between private and public groups, such that they learn to work together towards their common goal of improving infant and young child nutrition.”

Sources: Singer 2011; Ezezika 2009; Parsons 2009

7. Priorities for the next 5-10 years to leverage the full potential of private sector engagement

7.1 Focus on key areas for additional research

Stakeholders have called for further research on a number of questions pertinent to the design of successful FCF programs. Priorities identified include the following:

FCF product efficacy. Further information is needed, in particular, about LNS products. In 2009, the MIYCF Working Group identified those considered urgent:

Recommended amount of nutrients are uncertain; forms of nutrients differ in bioavailability, costs, and interaction with foods; information is needed on best sources of essential fatty acids to be used in such products; more data are needed on the value of including milk in such products, especially in relation to the type of milk product (whole, nonfat, whey), costs, and amount needed to improve child growth” (MIYCF 2009).

More recently, Dewey emphasized the need “to understand the potential growth-promoting effect of certain ingredients in LNS (e.g., milk powder, essential fatty acids)” (Dewey 2012).

Dewey also mentions the need for more programmatic studies to understand optimal ration size for LNS products for different target groups.

FCF products and morbidity. FCF interventions in populations with high rates of malaria have not been associated with adverse effects, but most of these did not look at the potential interaction *between initial iron status and the effects of iron treatment*. “There is still uncertainty about the safety of products given to iron-replete children, particularly in malarial areas....further research on this issue is urgently needed” (Dewey 2009).

FCF products and obesity. Research in developing countries is needed on the potential effects of FCF products on the risk of obesity in later life. Most studies to date have taken place in Europe and North America (Yang 2013; Dieffenbach 2012; Oddo 2012).

In addition, research is particularly needed on how to design separate interventions for households with a dual burden of stunting and obesity (Yang 2013).

Market segmentation. Effectiveness studies are needed on market segmentation strategies (commercial, subsidized, and free distribution) and on the co-existence of multiple distribution systems for the same products (Bahl 2013).

Effectiveness of FCF product interventions. The literature unanimously calls for more evidence about FCF intervention effectiveness in different populations. As a corollary, it calls for measuring the nutrition and development impact of *private sector engagement* in improving access to fortified complementary foods.

Indicator development. There is call to define *more adequate bio-markers* to measure the impact of products and interventions. Many researchers use “age of attainment of motor milestone” to measure product impact. Huffman and colleagues recommend looking at how this relates to later intelligent quotient and suggest that the best *composite indicator* would be: age of walking, height for age at 15 months, and number of words used at 18 months of age (Huffman 2013).

Cost and cost-effectiveness: Few studies of FCF interventions involving the private sector include discussions of operational and cost considerations (Dewey 2009; Huffman 2013). Monitoring of costs and analysis of cost-effectiveness is particularly important as more programs strive for scale and sustainability.

Dewey mentions especially the need for cost and comparative cost-effectiveness studies of LNS distribution with different integrated IYCN strategies.

7.2 Create and enforce international guidelines

The public sector has an urgent responsibility to create and release detailed and clear international guidelines regarding FCF product composition, marketing, and promotion.

WHO has been asked to provide specific guidance on FCF composition, marketing, and promotion based on the July 2013 updated Codex guidelines for complementary feeding. Some interviewees have advocated for the development of FCF guidelines equivalent to the International Code of Marketing of Breast-milk Substitutes (establishing a clear distinction between breastmilk substitutes and FCFs).

Follow with harmonized country guidelines. Once guidelines are in place, countries around the world should harmonize their local regulations accordingly and train stakeholders from both the private and public sectors to become compliant.

Establish a platform for monitoring and enforcement. Interviewees recommended setting up a neutral platform, or third-party “arbiter” with responsibility to:

- Interpret guidelines and provide further details and recommendations when needed
- Ensure compliance at global levels by monitoring activities of the private sector in a systematic way through regular audits and enforcement mechanisms

The question of who should manage/facilitate this platform is challenging (see box). The global platform should be mirrored by a similar platform in each country to enable local monitoring and enforcement.

7.3 Take further action to help rebuild trust and effective collaboration across sectors

Filling evidence gaps regarding FCF efficacy and effectiveness and clarifying (and enforcing) guidelines for their production and promotion are the two most important steps needed to build trust across sectors in this area. Other proposed actions include:

- **Engage a respected facilitator to further dialogue at a very high level on the potential benefits of public-private collaboration in child nutrition.** Suggestions included the Nobel Peace Laureate Desmond Tutu from South Africa or leaders of the Scaling Up Nutrition (SUN) initiative.
- **Raise the level of dialogue with counterparts** from the private sector beyond that of CSR departments to top management (“C-suite” leaders). In these discussions, recognition must always be made of the legitimate interests of both public and private sectors.

Who will monitor and enforce?

WHO is a logical choice for monitoring and enforcing international nutrition guidelines, but their resources are limited. Interviewees also mentioned the idea of an independent monitoring platform composed of the main international, regional, and local NGOs. Others mentioned involving the SUN Movement or delegating the task to a “neutral” consulting firm.

An accreditation scheme might also be adopted, with a the manufacturer “graduating” after passing a detailed audit of its product’s composition as well as labeling and promotion practices. The manufacturer would then be granted the right to use an approved logo on product packaging to signal compliance.

One interviewee proposed a web-based platform where companies would self-assess their FCF products and marketing/promotion practices using a standard questionnaire. Corporations would receive feedback and comments based on assessment results.

- **Conduct additional research to identify the fundamental causes of mistrust** and focus on increasing understanding of how to address those specific issues (Kay Dewey, UC Davis; Billie-Jo Hardy, ESC Program for Global Health).
- **Agree on indicators** to measure progress in engaging the private sector in improving access to FCFs.
- **Increase co-investment** in building and sharing evidence and market information.

7.4 Expand efforts to launch fully integrated, long-term programs that effectively segment the market

- **Increase investment in long-term programs** (as opposed to pilot studies) that have the potential to improve broad public awareness of new products and allow new delivery channels to mature and approach true scale and sustainability.
- **Collaborate between sectors to segment the market** and design tailored strategies for fully commercial, subsidized, and free distribution channels in order to reach all target groups and achieve a cross-subsidy if possible.
- **Apply lessons from other PPP health interventions** to fund private sector efforts in strategic areas in order to stimulate the market for the short term.

7.5 Document lessons and best practices

Information about both successes and failures in FCF program implementation and private sector engagement in infant and young child nutrition generally are urgently needed. Documentation should include any side effects of private sector engagement and how to minimize or prevent them. It should highlight experiences in improving trust and lessons in effective partnership governance.

8. Conclusion

The next decade will continue to see advances in FCF products—in their efficacy, their safety, and their acceptability among families in different countries and communities as new formulations are tailored for specific needs. As the science advances, guidelines will also be clarified. The challenges of harmonizing country guidelines, as well as those of monitoring and enforcement, are likely to remain problematic for some time. Nevertheless, it is clear that momentum for both pilot and large-scale programs is growing, and engagement of the private sector in these efforts is crucial—to benefit from their skills, their market presence, and their influence with consumers.

Research for this document confirmed that the next decade will be about defining the rules for engagement of the private sector in improving nutrition worldwide. Our findings suggest the urgent need to rebuild and experience trust among sectors, refine roles and expectations, and for the public sector to embrace its responsibility as enabler of a better environment for collaboration.

There is growing recognition that “no one solution can adequately provide all of what young children require, and other factors such as timing, food safety, and proper feeding practices come into play” (Badham 2013). Many stakeholders go further and recommend that FCF projects must be aligned and integrated into multi-sector interventions that combine nutrition-specific, health-based approaches with food systems and livelihood-based interventions (Remans 2011; Pinstrup-Andersen 2013; Ruel 2013).

This brief overview demonstrates that the expertise, the spirit of innovation, and the vision necessary for such an integrated approach to infant and young child nutrition are abundantly available. Effective collaboration is needed to move forward.

Annex 1: List of Interviewees

| | |
|-------------------------|--|
| Jane Badham | Managing Director, JB Consultancy |
| Kanika Bahl | Principal and Managing Director, Results for Development |
| Gilles Bergeron | Deputy Director Country Programs, FANTA, FHI 360 |
| Kay Dewey | Distinguished Professor, Dept. of Nutrition, University of California |
| Billie-Jo Hardy | Social Scientist, ESC Program for Global Health |
| Nicole Henretty | Nutrition Research and Policy Advisor, Edesia |
| Sandy Huffman | Nutrition Researcher, University of California |
| Maria Kasparian | Director of Operations, Edesia |
| Christine Kapkusum-Mbae | East African Portfolio Manager, Acumen Fund |
| Kathleen Kurtz | Principal Development Specialist – Nutrition, DAI |
| Karin Lapping | Senior Director - Nutrition, Save the Children |
| James Lee | Special Project Management, Valid International/GAIN |
| Engidu Legesse | Managing Director, Guts AgroIndustry Ethiopia |
| Adeline Lescanne | General Manager, Nutriset |
| Marie Chantal Messier | Public Affairs Manager, Nestle |
| Eva Monterrosa | Scientific Manager, Sight and Life, DSM |
| Paul Murphy | CEO, Valid Nutrition |
| Alice Pieret | Director of Operations, Nutriset |
| Ling Ling Phung | Project Manager, New Businesses Unit, Unilever |
| Mahbubur Rahman | Head of Marketing, Social Marketing Company Bangladesh |
| Camille Saade | Director of Strategic Partnerships, FHI 360 |
| Joel Segre | Strategy Consultant |
| Senoe Torgenson | Program Officer, Bill & Melinda Gates Foundation |
| Louis Vareille | Public Affairs Director, Danone |
| Steve Vosti | Associate Adjunct Professor, Agricultural & Resource Economics, University of California |
| Monica Woldt | Maternal and Child Health and Nutrition Advisor, FANTA, FHI 360 |

Annex 2: References

- Academy for Educational Development (2005). *NetMark: A case study in sustainable malaria prevention through partnership with business*. Washington, DC: Academy for Educational Development.
- Adams K, Vosti S, Lybbert T, Ayifah E. (2011). Integrating economic analysis with a randomized controlled trial: Willingness to pay for a new maternal nutrient supplement. Accessed at <http://ageconsearch.umn.edu/handle/103793> on July 20, 2013.
- Adu-Afarwuah S, Lartey A, Brown KH, Zlotkin S, Briend A, Dewey K. (2008). Home fortification of complementary foods with micronutrient supplements is well accepted and has positive effects on infant iron status in Ghana. *Am J Clin Nutr.* 87. 929-938.
- Alive & Thrive. (2013). *Engaging the private sector to reduce stunting in Bangladesh, Ethiopia, and Viet Nam: Lessons learned from Alive & Thrive*. Washington, DC: Alive & Thrive.
- Badham J. (2013). Ensuring optimal breastfeeding and improvements in complementary feeding to improve infant and young child nutrition in developing countries. *Matern Child Nutr.* 9 (Suppl. 1) 1-5
- Bahl K, Toro E, Qureshi C, Shaw P. (2013). *Nutrition for a Better Tomorrow: Scaling Up Delivery of Micronutrient Powders for Infants and Young Children*. Accessed at: <http://www.resultsfordevelopment.org/sites/resultsfordevelopment.org/files/resources/Nutrition-for-a-Better-Tomorrow-Full-Report.pdf> on August 14, 2013.
- Befeki T. (2005). Business as a partner in tackling micronutrient deficiency: lessons in multisector partnership. Accessed at http://www.hks.harvard.edu/m-rcbg/CSRI/publications/report_7_Bekefi_micronutrient_2006FNL1-23-07.pdf on August 10, 2013.
- Bisimwa G, Owino VO, Bahwere P, Dramaix M, Donnen P. et al. (2012). Randomized controlled trial of the effectiveness of a soybean-maize-sorghum-based ready-to-use complementary food paste on infant growth in South Kivu, Democratic Republic of Congo. *AM J Clin Nutr.* 26: 131-173.
- Bruyeron O, Denizeau M, Berger J, Treche S. (2010). Marketing complementary foods and supplements in Burkina Faso, Madagascar and Vietnam: Lessons learned from the Nutridev Program. *Food Nutr Bull.* 31.2 (supplement). S154-166.
- CDC, UNICEF, HKI, MOH Niger. *Formative data collection for development of a market-based point of use fortification program to improve the nutritional status of young children in Niger*. December 2010.
- Codex Alimentarius Commission (2013). *The Guidelines on Formulated Supplementary Foods for Older Infants and Young Children (CAC/GL 08-1991)*. Accessed at http://www.codexalimentarius.org/input/download/standards/298/CXG_008e.pdf#sthash.qeqAgBBz.dpuf on August 15, 2013.
- De-Regil LM, Suchdev PS, Vist GE, Walleser S, Pena-Rosas JP (2011). Home fortification of foods with multiple micronutrient powders for health and nutrition in children under two years of age. *Cochrane Database of Systematic Reviews* 2011, Issue 9. Art. No.: CD008959. DOI: 10.1002/14651858.CD008959.pub2.
- Defourny I, Minetti A, Harczi G, Doyon S, Shepherd S, et al. (2009) A large-scale distribution of milk-based fortified spreads: evidence for a new approach in regions with high burden of acute malnutrition. *PLoS ONE* 4(5): e5455.
- Dewey K, Yang Z, Boy E. (2009). Systematic review and meta-analysis of home fortification of complementary foods. *Matern Child Nutr.* 5, 283-321.

- Dewey K, Arimond M. (2012). Lipid-based nutrient supplements: How can they combat child malnutrition? *Plos Med* 9(9).
- Dieffenbach S, Stein AD. (2012). Stunted child/overweight mother pairs represent a statistical artifact, not a distinct entity. *J Nutr.* Apr;142(4):771-3. Epub 2012 Feb 29.
- Dror DK, Allen LH (2011). The importance of milk and other animal-source foods for children in low-income countries. *Food Nutr Bull* 32(3): 227-243.
- Ezezika OC, Thomas F, Lavery JV, Daar AS, Singer PA. (2009). A social audit model for agro-biotechnology initiatives in developing countries: accounting for ethical, social, cultural and commercialization issues. *J. Technol. Manag Innov.* 4(3): 24-33.
- Federal Ministry of Health of Ethiopia (2010). Assessment of feasibility and potential benefits of food fortification in Ethiopia, prepared for Ethiopian National Nutrition Program with support of CONCERN Worldwide, Ethiopia, and the World Bank by JBPHN, LLC. Accessed at <http://www.fao.org/fsnforum/sites/default/files/resources/Food%20Fortification%20Report.pdf> on August 13, 2013.
- Ferroni M, Castle P. (2011). Public-private partnership and sustainable agricultural development. *Sustainability*, 3, 1064-73.
- Flax VL, Ashorn U, Phuka J, Maleta K, Manary MJ, et al. (2008) Feeding patterns of underweight children in rural Malawi given supplementary fortified spread at home. *Matern Child Nutr* 4(1): 65-73.
- GAIN (2011) Essential fats are crucial for healthy children. Accessed at <http://www.gainhealth.org/sites/www.gainhealth.org/files/One%20pager%20on%20Essential%20Fats.pdf> on August 14, 2013.
- GAIN (2012). Nutritional Guidelines for Complementary Foods and Complementary Food Supplements Supported by GAIN. Accessed at <http://www.gainhealth.org/sites/www.gainhealth.org/files/GAIN%20IYCN%20guidelines%20formatted%20English%20FINAL.pdf> on August 15, 2013.
- Galpin L, Thakwalakwa C, Phuka J, Ashorn P, Maleta K, et al. (2007) Breast milk intake is not reduced more by the introduction of energy dense complementary food than by typical infant porridge. *J Nutr* 137(7): 1828-33.
- Gavin B. (2011). A qualitative study of UNSCN steering committee and working group facilitators views on engagement with the private industry. UNSCN News 39. Accessed at http://www.unscn.org/files/Publications/SCN_News/SCNNEWS39_10.01_high_def.pdf on August 12, 2013.
- Gillespie S, Haddad L, Mannar V, Menon P, Nisbett N. and the Maternal and Child Nutrition Study Group (2013). The politics of reducing malnutrition: building commitment and accelerating progress. *The Lancet*. June 6.
- Global Compact (2011). Partnership Fundamentals: a 10-step guide for creating effective UN-business partnerships. Accessed at http://www.unglobalcompact.org/docs/issues_doc/un_business_partnerships/Partnership_Fundamentals.pdf on August 24, 2013.
- Haddad L (2013a). Between puff and plunder: The evidence on business and nutrition. Accessed at <http://www.developmenthorizons.com/2013/05/between-puff-and-plunder-evidence->

[on.html?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+DevelopmentHorizons+%28Development+Horizons%29](http://www.developmenthorizons.com/2013/06/making-private-sector-public-in-hunger.html) on August 25, 2013.

Haddad L. (2013b). Making the Private Sector Public in Hunger and Malnutrition. Accessed at <http://www.developmenthorizons.com/2013/06/making-private-sector-public-in-hunger.html> on August 10, 2013.

Hanleybrown F, Kania J, Kramer M. (2012). Channeling change: making collective impact work. *Stanford Social Innovation Review*. January. Accessed at http://www.fsg.org/Portals/0/Uploads/Documents/PDF/Channeling_Change_SSIR.pdf On August 25th, 2013

Hawkes C, Buse K. (2011). Public-private engagement for diet and health: addressing the governance gap. *UNSCN News* 39. Accessed at http://www.unscn.org/files/Publications/SCN_News/SCNNEWS39_10.01_high_def.pdf on August 14th, 2013

Hawkes C, Buse K. (2011). Public health sector and food industry interaction: it's time to clarify the term "partnership" and be honest about underlying interests. *Eur J Public Health* 21 (4): 400-401.

Home Fortification Technical Advisory Group (HF-TAG) (2013). Global assessment of home fortification interventions 2011. Accessed at <http://hftag.gainhealth.org/sites/hftag.gainhealth.org/files/Global%20Assessment%20of%20Home%20Fortification%20Interventions%202011.pdf> on August 14th, 2013

Hoppe C, Molgaard C, Michaelsen KF. (2006). Cow's milk and linear growth in industrialized and developing countries. *Annu Rev Nutr*. 26:131-173.

Houngbe F, Huybregts L, Salpeteur C, Brown R, Roberfroid D, et al. (2012). Adding ready-to-use supplementary food to a general food distribution improved anemia, length, and morbidity: a cluster randomized controlled trial. *Plos Med* 9

Huffman S, Schofield D. (2013). Enhancing young children nutrition and development in developing countries. *Mater Child Nutr*, 9 (suppl. 1), 6-11

IBFAN (2012). The scaling up nutrition (SUN) initiative IBFAN's concern about the role of businesses. Accessed at http://www.ibfan.org/art/SUN-IBFAN_281112.pdf on August 10th, 2013

Jefferds ME, Ogange L, Owuor M, Cruz K, Person B, Obure A, Suchdev PS, Ruth LJ. (2010) Formative research exploring acceptability, utilization, and promotion in order to develop a micronutrient powder (Sprinkles) intervention among Luo families in western Kenya. *Food Nutr Bull*. 2010 Jun;31(2 Suppl):S179-85.

Kawarazuka N, Béné C. (2011). The potential role of small fish species in improving micronutrient deficiencies in developing countries: building evidence. *Public Health Nutr*. Nov;14(11):1927-38.

Krebs NF, Mazariegos M, Chomba E, Sami N, Pasha O, Tshetu A, Carlo WA, Goldenberg RL, Bose CL, Wright LL, Koso-Thomas M, Goco N, Kindem M, McClure EM, Westcott J, Garces A, Lokangaka A, Manasyan A, Imenda E, Hartwell TD, Hambidge KM (2012). Randomized controlled trial of meat compared with multimicronutrient-fortified cereal in infants and toddlers with high stunting rates in diverse settings. *Am J Clin Nutr*. Oct;96(4):840-7.

Kodish S, Rah JH, Kraemer K, de Pee S, Gittelsohn (2011) Understanding low usage of micronutrient powder in the Kakuma Refugee Camp, Kenya: findings from a qualitative study. *Food Nutr Bull*. Sep;32(3):292-303.

Kramer M, Parkhurst M, Vaidyanathan L. (2009). Breakthroughs in shared measurement and social impact. FSG. Accessed at

<http://www.fsg.org/Portals/0/Uploads/Documents/PDF/Breakthroughs in Shared Measurement complete.pdf> on August 15th, 2013.

Lemaire M, Islam QS, Shen H, Khan MA, Parveen M, Abedin F, Haseen F, Hyder Z, Cook RJ, Zlotkin SH (2011). Iron-containing micronutrient powder provided to children with moderate-to-severe malnutrition increases hemoglobin concentrations but not the risk of infectious morbidity: a randomized, double-blind, placebo-controlled, non inferiority safety trial. *Am J Clin Nutr.* Aug;94(2):585-93.

Lin CA, Manary MJ, Maleta K, Briend A, Ashorn P (2008). An energy-dense complementary food is associated with a modest increase in weight gain when compared with a fortified porridge in Malawian children aged 6-18 months. *J. Nutr.* 138 (3): 593-598.

Magnani R, Gevorgyan A, Kurz K. 2012. Market Analysis of Complementary Foods in Nepal. Global Nutrition CRSP Research Briefing Paper 12. Accessed at: http://www.nutritioninnovationlab.org/wp-content/uploads/2013/01/RBP12_DAI_Market_Analysis_Complimentary_Foods_Nepal_FINAL.pdf on July 30, 2013.

Masset E, Haddad L, Cornelius A, Isaza-Castro J (2012). Effectiveness of agricultural interventions that aim to improve nutritional status of children: systematic review. *BMJ.* Jan 17;344:d8222.

Maternal, Infant and Young Child Nutrition (MIYCN) Working Group: Formulation Subgroup of the Ten Year Strategy to Reduce Vitamin and Mineral Deficiencies. (2009). Formulations for fortified complementary foods and supplements: review of successful products for improving nutritional status of infants and young children. http://www.nutridev.org/IMG/pdf/MIYCN_Formulation_subgroup_FNB_2009.pdf Accessed on August 15, 2013.

Menon P, Ruel M, Loechl C, Arimond M, Habicht J, Pelto G, et al. (2007). Micronutrient sprinkles reduce anemia among 9- to 24-month-old children when delivered through an integrated health and nutrition program in rural Haiti. *J Nutr.* 137. 1023-30.

Mridha M, Chaparro C, Matias S, Hussain S, Munira S, Saha S, Day LT, Dewey K. (2012). Acceptability of lipid-based nutrient supplements and micronutrient powders among pregnant and lactating women and infants and young children in Bangladesh and their perceptions about malnutrition and nutrient supplements. Done under Fanta-2 bridge. Accessed at http://www.fantaproject.org/downloads/pdfs/Bangladesh_LNS_Acceptability_Feb2012.pdf on July 23rd, 2013.

Nelson J. (2006). Business as a partner in overcoming malnutrition: an agenda for action. Accessed at http://www.hks.harvard.edu/m-rcbg/CSRI/publications/report_14_NUTRITION%20FINAL.pdf on August 5, 2013.

Nutriset (2009) The GrandiBien project in Niger. Accessed at: <http://www.nutriset.fr/en/access/access-approach/tools-and-means-to-improve-access/directly-reaching-low-income-populations/grandibien-project-niger.html> on August 14th, 2013.

Oddo VM, Rah JH, Semba RD, Sun K, Akhter N, Sari M, de Pee S, Moench-Pfanner R, Bloem M, Kraemer K. (2012) Predictors of maternal and child double burden of malnutrition in rural Indonesia and Bangladesh. *Am J Clin Nutr.* Apr;95(4):951-8.

Owino VO, Bahwere P, Bisimwa G, Mwangi CM, Collins S (2011) Breast-milk intake of 9-10-month-old rural infants given a ready-to-use complementary food in South Kivu, Democratic Republic of Congo. *Am J Clin Nutr* 93(6): 1300-1304.

- Palmer G. (2009). What is complementary feeding? A philosophical reflection to help a policy process. A discussion paper developed for the International Baby Food Action Network (IBFAN). Accessed at: http://www.ibfan.org/art/IBFAN_CF_FINAL_document.pdf on July 20th, 2013.
- Parsons J, Lavery J. (2012). Brokered dialogue: a new research method for controversial health and social issues. *BMC Medical Research Methodology*. 12: 92.
- Pelto GH, Armar-Klimesu M. (2011). Balancing nurturance, cost and time: complementary feeding in Accra, Ghana. *Matern Child Nutr*. Oct;7 Suppl 3:66-81.
- Pelto G, Armar-Klimesu M, Siekmann J, Schofield D. (2013). 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. *Mater Child Nutr*, 9 (suppl. 1) 35-46.
- Phuka JC, Maleta K, et al. (2008). Complementary feeding with fortified spread and incidence of severe stunting in 6- to 18- month-old rural Malawians. *Arch Pediatr Adolesc*; 162:619-26
- Phuka J, Maleta K, Thakwalakwa C, Cheung YB, Briend A, Manary M, Ahorn P. (2009). Post-intervention growth of Malawian children who received 12-months dietary complementation with a lipid-based nutrient supplement or maize-soy flour. *Am J Clin Nutr*. 89:382-90.
- Phu PV, Hoan NV, Salvignol B, Treche S, Wieringa FT, Dijkhuizen MA, Khan NC, Tuong PD, Schwartz H, Berger (2012). A six-month intervention with two different types of micronutrient-fortified complementary foods had distinct short- and long-term effects on linear and ponderal growth of Vietnamese infants. *J. J Nutr*. Sep;142(9):1735-40.
- Pinstrup-Andersen P. (2013). Nutrition-sensitive food systems: from rhetoric to action. *The Lancet* 382; 9890; 375-6.
- POUZN Project (2011). Introducing improved treatment of childhood diarrhea with zinc and ORT in India, Indonesia, and Tanzania. Washington, DC: POUZN Project, Academy for Educational Development.
- Quinn V, Zehner E, Schofield D, Guyon A, Huffman S. Using the Code of Marketing of Breast-milk Substitutes to Guide the Marketing of Complementary Foods to Protect Optimal Infant Feeding Practices. GAIN Working Paper Series no. 3. Global Alliance for Improved Nutrition (GAIN). Geneva, Switzerland, 2010. Accessed at: <http://hftag.gainhealth.org/sites/hftag.gainhealth.org/files/Using%20the%20Code%20of%20Marketing%20of%20Breastmilk%20Substitutes%20GAIN%20publications.pdf> on August 20, 2013.
- Rai D, Larson B (2009). Driving research in infant and children's nutrition: a perspective on industry. *Am J Clin Nutr*; 89(suppl):1530S-2S.
- Remans R, Pronyk P, Fanzo , Chen J, Palm C, et al. (2011). Multisector intervention to accelerate reductions in child stunting: an observational study from 9 sub-Saharan African studies. *Am J Clin Nutr* 94; 1632-42
- Roos N, Sorensen JC, Sorensen H, Rasmussen SK, Briend A, Yang Z, Huffman S. (2013). Screening for anti-nutritional compounds in complementary foods and food aid products for infants and young children. *Matern Child Nutr*. 9 (Suppl.1). 47-71.
- Ruel M, Alderman H, and the Maternal and Child Nutrition Study Group (2013). Nutrition-sensitive interventions and programs: how can they help to accelerate progress in improving maternal and child nutrition? *The Lancet* 382; 9890; 536-51.
- Saadé C, Batemen M, Bendahmane DB (2001). The story of a successful public-private partnership in Central America: Handwashing for diarrheal disease prevention. Arlington, VA: BASICS, EHP, UNICEF, and The World Bank.

Segre J, Winnard K, Abrha TH, Abebe Y, Shilane D, Lapping K. (2012). Willingness to pay for lipid-based nutrient supplements for young children in four urban sites of Ethiopia. *Matern Child Nutr.* Dec 13.

c

Singer P, Ansett S, Sagoe-Moses (2011). What could infant and young children learn from sweatshops? *BMC Public Health* 11:276.

Singh JA, Daar AS, Singer PA. (2010). Shared principles of ethics for infant and young child nutrition in the developing world. *BMC Public Health.* 10: 321.

Slater, S and Saadé C (1996). Mobilizing the Commercial Sector for Public Health Objectives: A Practical Guide. Arlington, VA: BASICS and UNICEF.

Soofi S, Cousens S, Iqbal S, et al. (2013). Effect of provision of daily zinc and iron with several micronutrients on growth and morbidity among young children in Pakistan: a cluster-randomized trial. *The Lancet.* 382 - 9886.

Suchdev P, Shah A, Jefferds ME, et al. (2013). Sustainability of market-based community distribution of Sprinkles in Western Kenya. *Matern Child Nutr.* 9 (Suppl1), 78-88.

Sun J, Dai Y, Zhang S, Huang J, Yang Z, Huo J, Chen C. (2011). Implementation of a program to market a complementary food supplement (Ying Yang Bao) and impacts on anaemia and feeding practices in Shanxi, *Matern Child Nutr.* Oct;7 Suppl 3:96-111.

SUN Business Network Toolkit (2013). <http://scalingupnutrition.org/wp-content/uploads/2013/02/Business-Network-Private-Sector-Engagement-Toolkit.pdf> (Accessed August 13th, 2013).

Sweet L, Jerling J, Van Graan A. (2012). Field-testing of guidance on the appropriate labeling of processed complementary foods for infants and young children in South Africa. *Maternal and Child Nutrition.* 9 (Suppl.1). 12-34.

Tench J. (2013). The Business Case for Scaling up Nutrition – Seizing the moment. http://community.businessfightspoverty.org/profiles/blogs/jonathan-tench-the-business-case-for-scaling-up-nutrition-seizing?xg_source=msg_mes_network. Accessed August 27, 2013.

The 2012 World Breastfeeding Conference Declaration and Call to Action (2012). [http://www.worldbreastfeedingconference.org/images/128/Declaration%20FINAL\(1\).pdf](http://www.worldbreastfeedingconference.org/images/128/Declaration%20FINAL(1).pdf) (Accessed August 27, 2013).

United Nations Standing Committee on Nutrition – UNSCN (2006). Private Sector Engagement Policy. Accessed at http://www.unscn.org/en/structure/scn_and_the_private_sector (Accessed August 15, 2013).

United Nations Standing Committee on Nutrition – UNSCN (2011). Nutrition and business: how to engage. *UNSCN News* 39. http://www.unscn.org/files/Publications/SCN_News/SCNNEWS39_10.01_high_def.pdf (Accessed August 10 2013).

USAID's infant and young child nutrition project (2011). Formative assessment of infant and young child feeding practices. Federal Capital territory, Nigeria. http://ycn.wpengine.netdna-cdn.com/files/IYCN_Nigeria_Formative_Assessment_010611.pdf (Accessed August 19, 2013).

Vitta B, Dewey K (2012). Essential fats for mother and infants: another dimension of dietary quality. http://www.aliveandthrive.org/sites/default/files/Technical%20Brief-Essential%20Fats-4-20-12_0.pdf (Accessed August 14, 2013).

Vitta B, Dewey K (2012). Identifying micronutrient gaps in the diets of breastfed 6-11-month-old infants in Bangladesh, Ethiopia and Viet Nam using linear programming.
<http://aliveandthrive.org/sites/default/files/Technical%20Report%20on%20Nutrient%20Gaps.pdf>
(Accessed on August 14, 2013).

Wang YY, Wang EZ, Wang K, Chen CM. (2006). Effects of nutrient fortified complementary food supplements on development of infant and young children in poor rural area of Gansu Province. *Wei Chen Yan Jiu*. 35, 772-774.

World Vision (2005). Effectiveness of home-based fortification of complementary foods with Sprinkles in an integrated nutrition program to address rickets and anemia. Accessed at
<http://wvi.org/sites/default/files/Mongolia-Sprinkles-Evaluation-Report-2005.pdf> on August 15, 2013.

WHO (2011). Guideline: Use of Multiple Micronutrient Powders for Home Fortification of Foods Consumed by Infants and Children 6-23 months of age. Geneva, World Health Organization.

Yang Z, Huffman S. (2013). Nutrition in pregnancy and early childhood and associations with obesity in developing countries. *Matern Child Nutrition*. 9 (Suppl.1) 105-119.

Zlotkin S, Arthur P, Schauer C, Antwi KY, Yeung G and Piekarcz A. (2003) Home-fortification with iron and zinc sprinkles or iron sprinkles alone successfully treats anemia in infants and young children. *J Nutr* 133, 1075–1080.