

FOCUS ON  
FOOD CULTURE

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# Sight and Life

**18** SOCIAL MARKETING IN SUDAN

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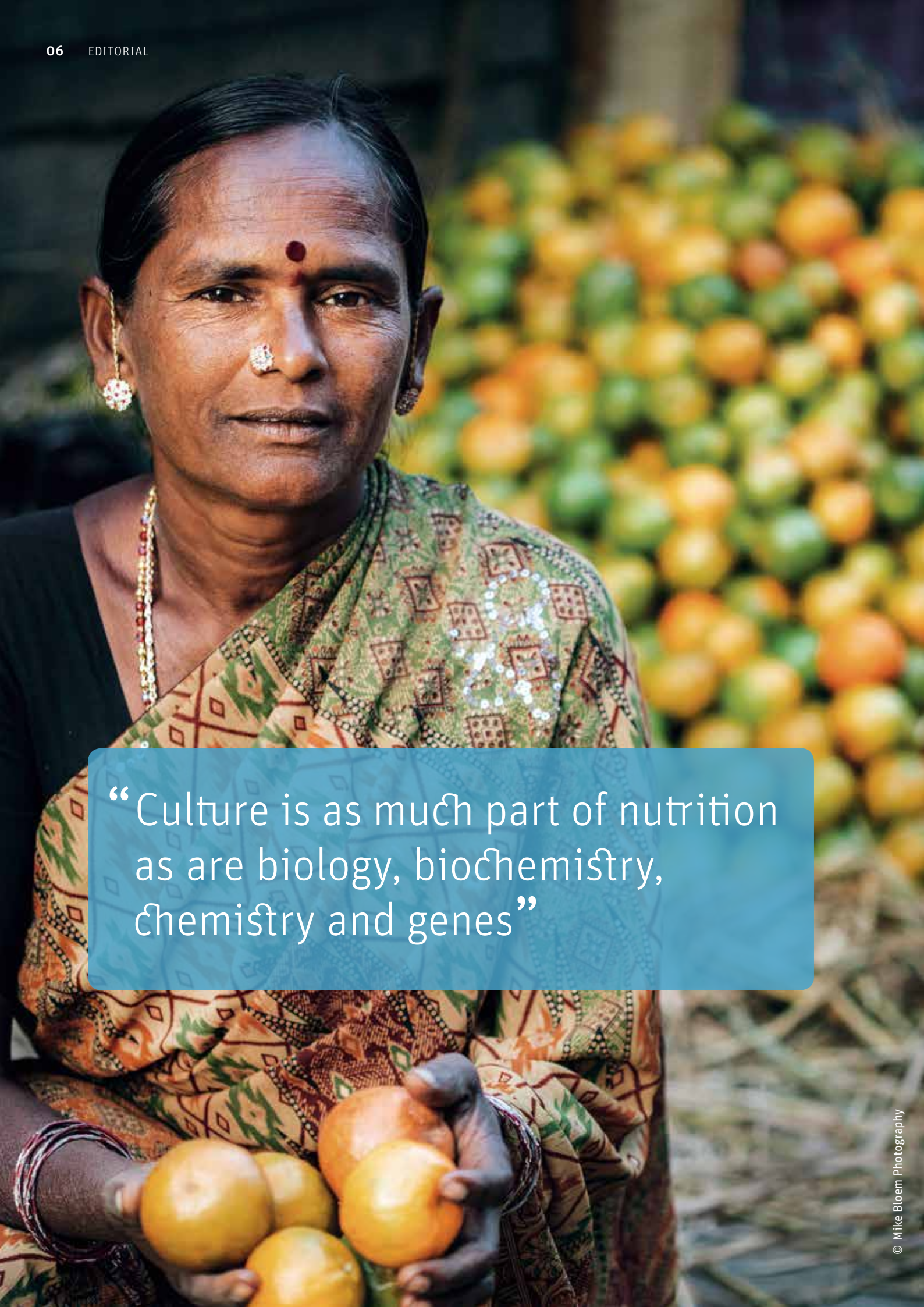












“Culture is as much part of nutrition as are biology, biochemistry, chemistry and genes”



# Welcome

## Culture: A Key Dimension of Nutrition

In the era of the 2030 Sustainable Development Goals, there is a renewed focus on food choices and the impact these can have on our environment and our health. The challenge for our global community is to find sustainably efficient ways to feed nutritious foods to a growing population that is increasingly urban and reliant on food markets. Guiding food choices towards healthy, sustainable diets for nine billion people, billions of whom are consumers, would seem a good place to start. In fact, you will find that the nutrition-sensitive literature has featured the word consumer (defined by the Oxford English Dictionary as “someone who buys goods or services for personal use”) quite prominently in its conceptual models (see the Global Panel on Agriculture and Food Systems for Nutrition 2016 report, page 27, [Figure 1.4](#)),<sup>1</sup> and scientists are advocating for consumer-centered policy design.<sup>2</sup> I hope this signals a move towards consumer-focused (rather than expert-driven) work, with funding dollars to encourage research into consumer decision-making around food, especially in low- and middle-income countries.

## The complexity of consumer choice

Consumer food choices, however, are anything but straightforward. Governments play a critical role in shaping food systems, especially in defining what is available and affordable, and people are constantly negotiating food choices. Some of the more notable criteria whereby we negotiate these choices across diverse eating contexts are time, cost, convenience,<sup>3</sup> taste, values, social expectations, and knowledge.<sup>4</sup> This long list of factors indicates that food choice is about the attributes of foods (e.g., healthy/unhealthy, salty/sweet) as well as about food experiences (eating and social factors). The food experience is apparent in our procurement experience – in the wet and dry markets, grocery stores and small shops that consumers visit; in our meal preparation and eating experiences, such as where we prepare foods, with whom and for whom, and who is present at meals; and in the contexts (i.e., home, at work, at school, in restaurants or at street food stalls) in which these meals are consumed.

For this issue on food and culture, we have curated contributions that explore the social and cultural domains of food choices and food experiences more broadly. We acknowledge that this is only part of the story. We promise to explore cognition (psychology, brain) and biology (evolution, genes, biochemistry) – factors that also drive food choices – in a future issue of the magazine. For some of our readers trained in biology or chemistry, culture may seem a fuzzy, perhaps non-scientific topic. Be assured, however, that culture is as much part of nutrition as are biology, biochemistry, chemistry and genes, and there is a rich body of research on nutrition and culture. I invite you to explore this issue of *Sight and Life* with a curious mind, with a view to learning more about how a cultural perspective can enrich your nutrition research and programs.

## Food, culture, and nutrition science

The Oxford English Dictionary defines culture as the beliefs, values, practices, social forms, and material traits of social groups.<sup>5</sup> So when we speak of food and culture or of food culture, what we are examining are the *shared* values, beliefs, and practices that guide the food choices of a group of people. The cultural perspective is especially useful when seeking to understand the multiple factors that affect eating, such as food availability, food purchases, meal preparation or meal selection, and the eating environment. As the late Professor Hans Rosling said, “scientists want to do good, but the problem is that they don’t understand the world.”<sup>6</sup>

.....

“Food culture is about shared values, beliefs, and practices”

.....

I would like to thank all our contributors, who have very generously shared their insights and research in these pages. For a broad overview of perspectives in nutrition culture, I suggest you first turn to page 32, where Prof. Edward F Fischer discusses the ways in which food expresses our identity, values, and be-



liefs. For a classic example of how cultural research (and ethnography, in particular) can generate valuable insights, I encourage you to read Prof. Fischer's book *The Good Life: Aspiration, dignity and the anthropology of well-being*, which is reviewed by Jonathan Steffen on page 110.

For examples of how the biocultural framework and ethnographic research have been applied to infant and young children, I invite you to turn to page 46. Here Dr Gretel Pelto and I focus on how mother-infant dyad relationship offers a broad perspective for understanding food choices for infants and young children.

In this issue, we focus on topics that drew on "consumer research", "formative research", and "social marketing" as ways of studying or addressing values and beliefs on food choices and food practices (see [Table on page 10](#) for definitions). In the broader context of understanding consumer decisions around food and eating experiences, we feature two articles. Yanna Manuk and collaborators use a social marketing approach to examine the motivations and values that drive choices for the use of micronutrient powders in Sudan. Meanwhile, Adrienne Claremont examines the food purchasing and consumption behaviors of Haitian women on foods for their young children. And to learn how the SUN Business Network is using consumer research to encourage the development of healthier food options, read Dr Hannah Theobald's piece on page 40.

Our field report section offers examples of how to apply ethnographical research methods in order to improve food practices. On page 93 we have used ethnography to develop a WASH and nutrition intervention in schools in India. On page 90, we feature how studying shopping and eating experiences will help a microfranchising endeavor in South Africa sell its fortified food products. I am also pleased to feature two reports on innovative technology that supports healthy eating habits. On page 83 there is a report from AeroFarms on their game-changing innovation for growing green leafy vegetables in urban areas; and on page 86, read about Medic Mobile's platform to empower front-line workers.

We hope you will enjoy this new issue of *Sight and Life* magazine and, as ever, look forward to your feedback and your suggestions for future issues.

Warm regards,



Eva Monterrosa  
Sr Scientific Manager, *Sight and Life* Foundation

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# The many synonyms of “food choices”

Delve into the topic of diet and you are likely to find terms closely associated with “food choices”. For example, “food consumption patterns”, “dietary patterns”, “food practices”, “food intake patterns”, “food habits”, and “dietary habits”. All are used interchangeably with each other and sometimes with *food choices*. Although they are related, it is helpful to distinguish between the terms “habit” and “practice”, especially with reference to the sociocultural perspective.<sup>1,a</sup>

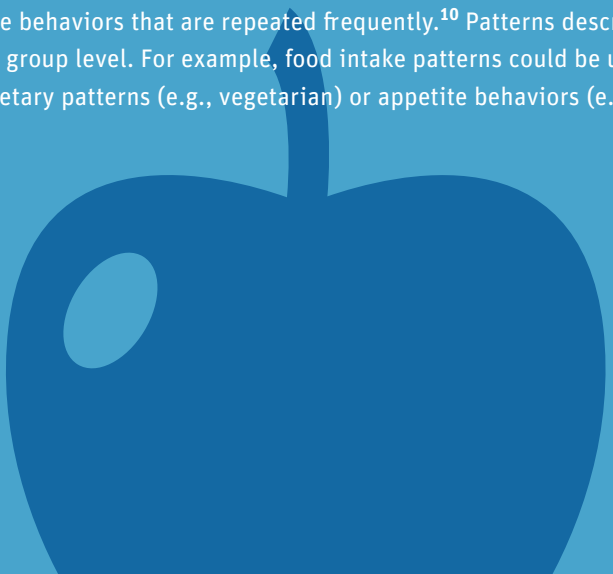
**Habits** – also called food culture or food ways. Food habits deal broadly with how food is obtained, distributed, prepared and combined, who serves it, when it is eaten (meal times) and who eats the food, and ultimately what is consumed.<sup>1,2</sup> Food habits are synonymous with food consumption patterns or dietary patterns.

**Practices** – are a collection of behaviors specific to a category (e.g., meal preparation practices, food hygiene practices, healthy eating practices, maternal care practices). Behaviors are observable actions.<sup>3</sup> Food choices are likewise observable actions (behaviors).

Food habits are broader than practices and food choices. Habits refer to cultural and social aspects of food, largely occurring at the macro-levels (community, region, national, ethnic groups, religious groups). Practices are more specific and variable, occurring at the level of the individual or of smaller groups. For example, you might find different types of food practices within one community. We often talk about household food practices, with some families having healthier practices than others.

If your head isn’t spinning yet, then there are the labels used to describe food choice research or food choice programs – which makes navigating this space a bit confusing. In the **Table** on page 10, we define the labels one is most likely to encounter when reading published literature on “food choice” in nutrition. Also, you will note that some labels are better suited for studying or changing food habits and food patterns, while others concern behaviors and practices.

**Note:** <sup>a</sup> If one draws on the behavioral or cognitive sciences, habits and patterns have different connotations. Habits are behaviors that are repeated frequently.<sup>10</sup> Patterns describe recurrent behavior categories (or habits) at the individual or group level. For example, food intake patterns could be used to describe meal patterns (e.g., skipping breakfast), dietary patterns (e.g., vegetarian) or appetite behaviors (e.g., picky eating).



## Selected labels used in food choice research

### Social Marketing

is an approach to studying and designing goods and services.<sup>4</sup> It is the application of marketing principles (audience insight and consumer research, audience segmentation, marketing mix) and marketing techniques to promote behaviors that will improve health or wellbeing.

### Behavior Change Communication (BCC)

is a term that describes an “evidence- and research-based process of using **communication to promote behaviors** that lead to improvements in health outcomes. With BCC, the focus is largely on the individual who enacts the behavior.”<sup>5</sup>

### Social and Behavior Change Communication (SBCC)

is a term that describes a “research-based, consultative process that uses **communication** to promote and facilitate **behavior change** and support the requisite **social change** for the purpose of improving health outcomes.”<sup>5</sup> SBCC draws on all levels of the social ecology theory: individual level, families and communities, as well as the social and cultural environments that enable social change.

### Human-Centered Design

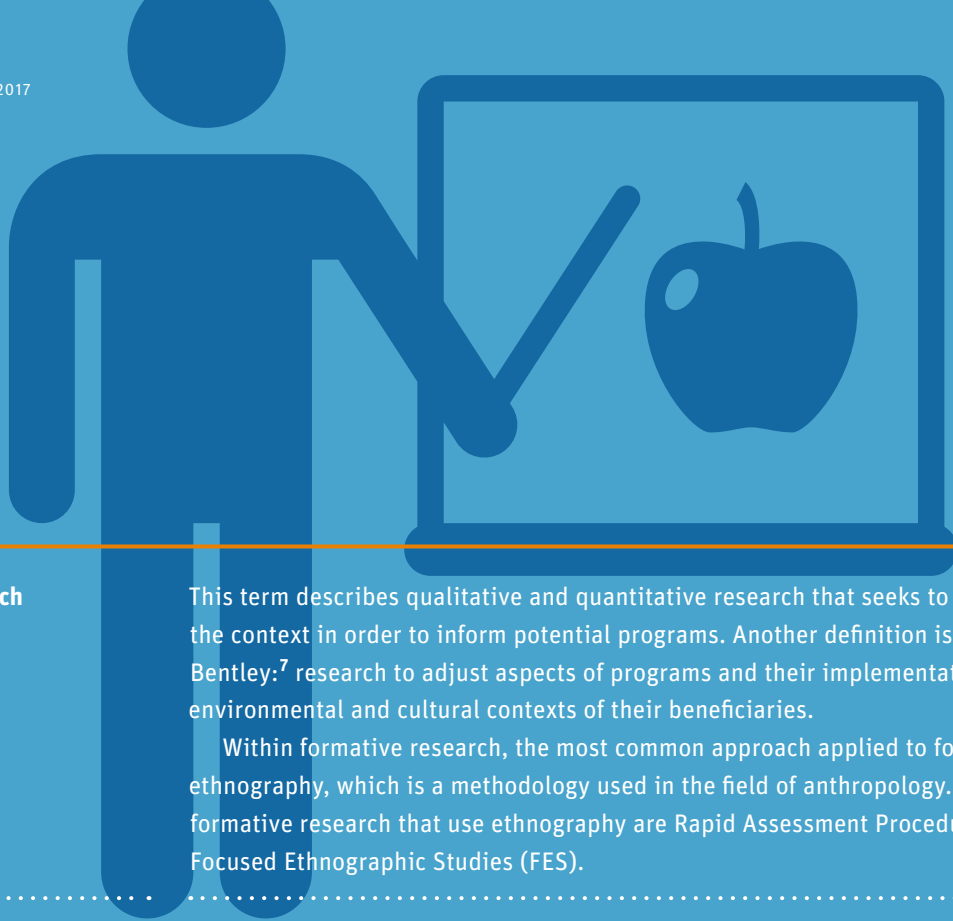
is an approach to “design **with** communities, to deeply understand the people they’re looking to serve, to dream up scores of ideas, and to create innovative new solutions rooted in people’s actual needs.”<sup>6</sup>

### Consumer Research

Research that uses qualitative and quantitative methods to understand the needs, motivations, and desires of consumers who are purchasing (or using) goods or services.







**Formative Research**

This term describes qualitative and quantitative research that seeks to understand the context in order to inform potential programs. Another definition is provided by Bentley:<sup>7</sup> research to adjust aspects of programs and their implementation to the environmental and cultural contexts of their beneficiaries.

Within formative research, the most common approach applied to food choice is ethnography, which is a methodology used in the field of anthropology. The types of formative research that use ethnography are Rapid Assessment Procedures (RAP) or Focused Ethnographic Studies (FES).

**Behavioral Economics**

A field of study that applies psychological insights to explain judgments and decision-making in the areas of finances, healthy eating, and other practices. Behavioral economics is based on the premise that human beings are non-rational actors, and that to make judgments and take decisions, we rely on **heuristics** (mental short-cuts) and are influenced by **biases**.<sup>8</sup>

**Nutrition Education**

is a subfield of nutrition, one that uses various strategies “that not only provide information and skills, but also foster motivation, growth and change. Nutrition education encourages critical thinking and reflection.”<sup>3</sup> Within nutrition education there are various strategies (i.e., counseling, peer education, adult learning principles) that can be used to encourage changes in food practices.

**Health Promotion**

According to WHO, health promotion is not focused on the individual but on the social and environmental changes that are required to achieve health.<sup>9</sup> For example, health promotion policy would look at improving wages, making public transport to markets more accessible, and introducing taxes or subsidies to support healthy food choices.

**References:** <sup>1</sup>Sanjur D. Social and cultural perspectives in nutrition. Englewood Cliffs: Prentice-Hall, 1982. | <sup>2</sup>Mead MM. The problem of changing food habits. In: National Research Council (US) Committee on Food Habits. The Problem of Changing Food Habits: Report of the Committee on Food Habits 1941–1943. Washington DC: National Academies Press, 1943. | <sup>3</sup>Contento IR. Nutrition Education: linking research, theory, and practice. 3<sup>rd</sup>ed. Burlington, MA: Jones and Bartlett Learning, 2016. | <sup>4</sup>Weinreich NK. Hands-on Social Marketing: A step-by-step guide to designing change for good. 2nd ed. Thousand Oaks CA: Sage Publications, 2011. | <sup>5</sup>Manoff Group. Technical Brief: Defining social and behavior change communication (SBCC) and other essential health communication terms. Internet: <http://manoffgroup.com/documents/DefiningSBCC.pdf>. (Accessed 15 May 2017) | <sup>6</sup>IDEO. The Field Guide to Human-Centered Design. 2015. Internet: [https://cipe.yale-nus.edu.sg/wp-content/uploads/sites/9/2015/12/IDEO\\_Field-Guide-to-Human-Centered-Design.pdf](https://cipe.yale-nus.edu.sg/wp-content/uploads/sites/9/2015/12/IDEO_Field-Guide-to-Human-Centered-Design.pdf). (Accessed 12 May 2017). | <sup>7</sup>Bentley ME, Johnson SL, Wasser H et al. Formative research methods for designing culturally appropriate, integrated child nutrition and development interventions: An overview. *Ann N Y Acad Sci* 2014;1308:54–67. | <sup>8</sup>Thaler RH, Mullainathan S. Behavioral Economics. In: *The Concise Encyclopedia of Economics*. Library of Economics and Liberty, 2008. <http://www.econlib.org/library/Enc/BehavioralEconomics.html>. (Accessed 16 May 2017). | <sup>9</sup>World Health Organization. Health Promotion. [www.who.int/topics/health\\_promotion/en/](http://www.who.int/topics/health_promotion/en/). (Accessed 15 May 2017). | <sup>10</sup>Fiske ST, Taylor SE. *Social Cognition: from brains to culture*. 2<sup>nd</sup> ed. Los Angeles: Sage, 2013.

# Prevalence of Prelacteal Feeding Across the World\*

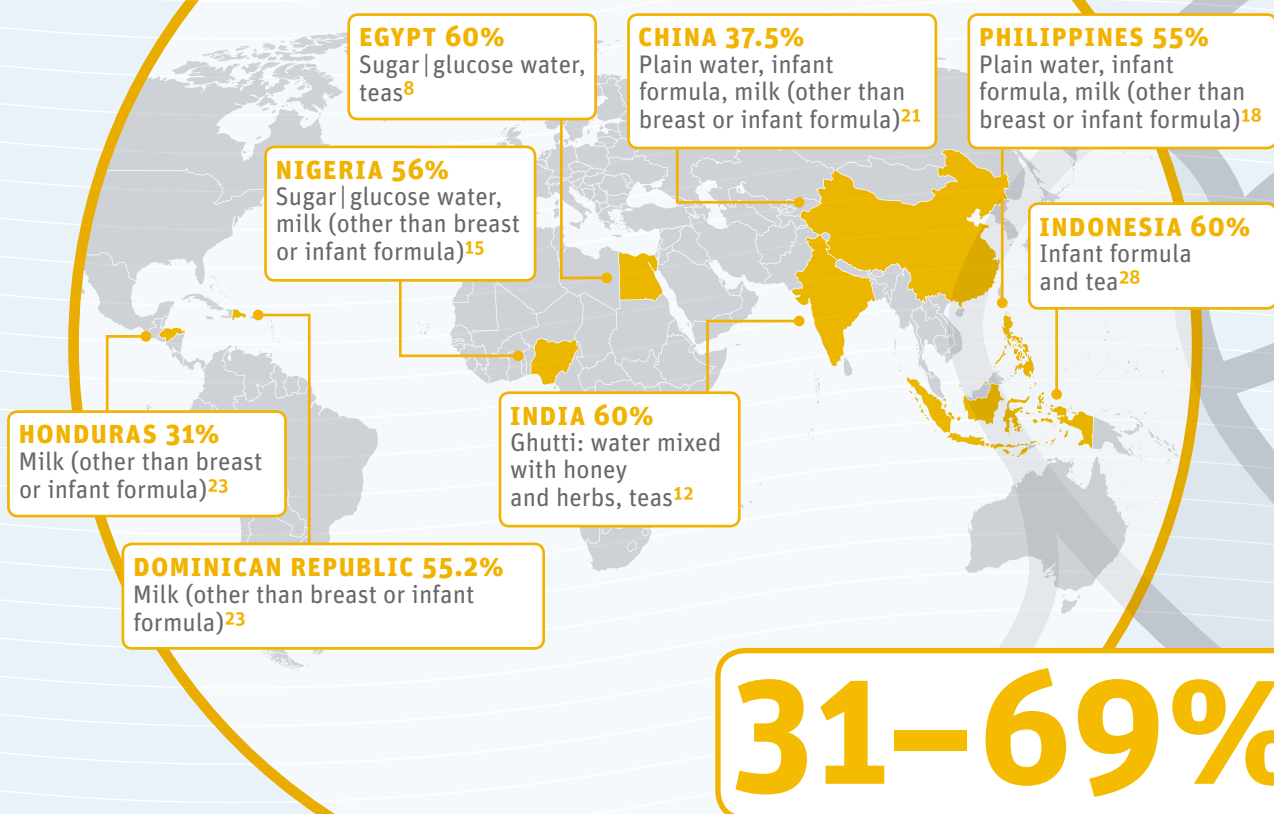
## What it is?

Exclusive breastfeeding for the first six months of life is beneficial for mother and baby and implies that an infant receives breast milk without any additional food or drink, even water, for the first six months.<sup>1</sup> Any food provided to a newborn before the initiation of maternal breastfeeding is considered to be a prelacteal feed.<sup>2</sup> The type of prelacteal feed is often culturally determined.

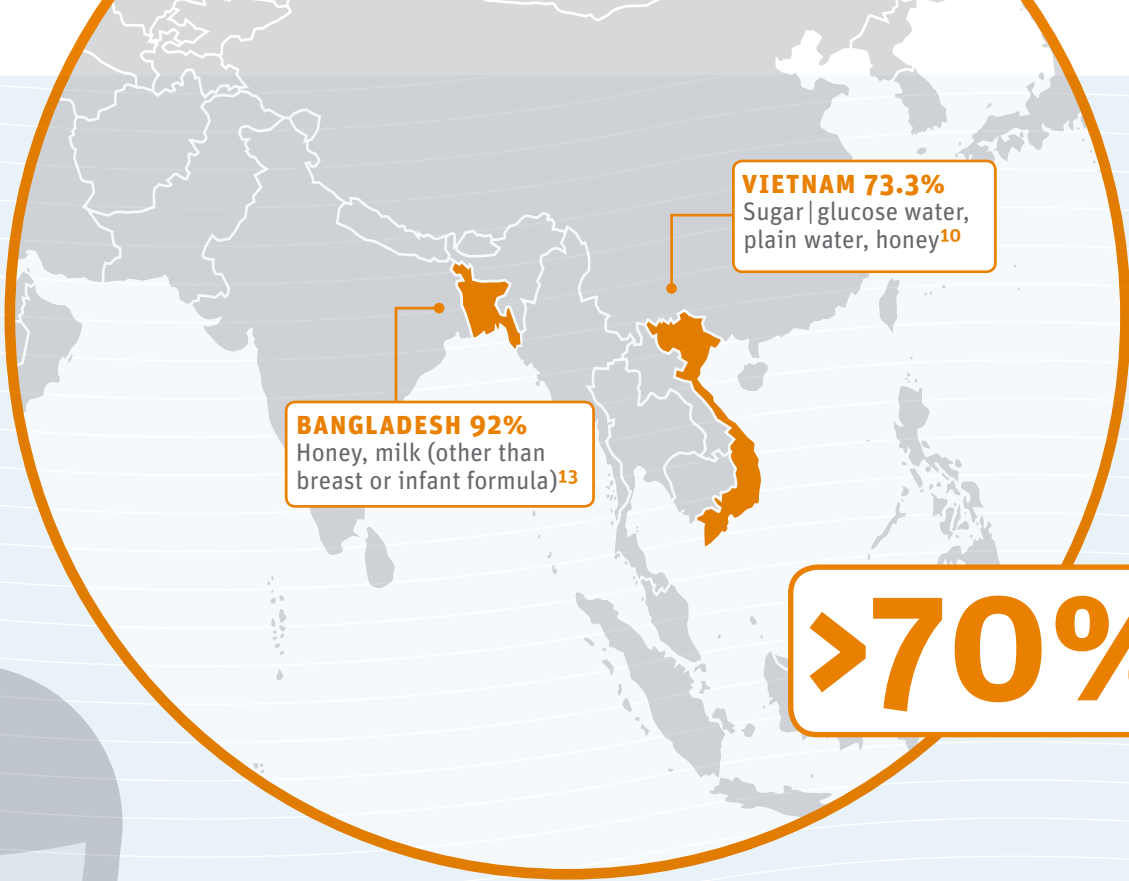
## Why it matters?

The practice of giving prelacteal feeds is a key determinant of early cessation of full breastfeeding.<sup>4</sup> Prelacteal feeding is associated with an increased risk of illness from acute respiratory tract infections<sup>4</sup> and diarrhea.<sup>5</sup> Children with a history of prelacteal feeding are 16 times more likely to develop diarrhea.<sup>5</sup> Studies show that poor breastfeeding knowledge, breast-feeding misconceptions, and beliefs about social norms with regard to breastfeeding influences rates of prelacteal feeding.<sup>10</sup>

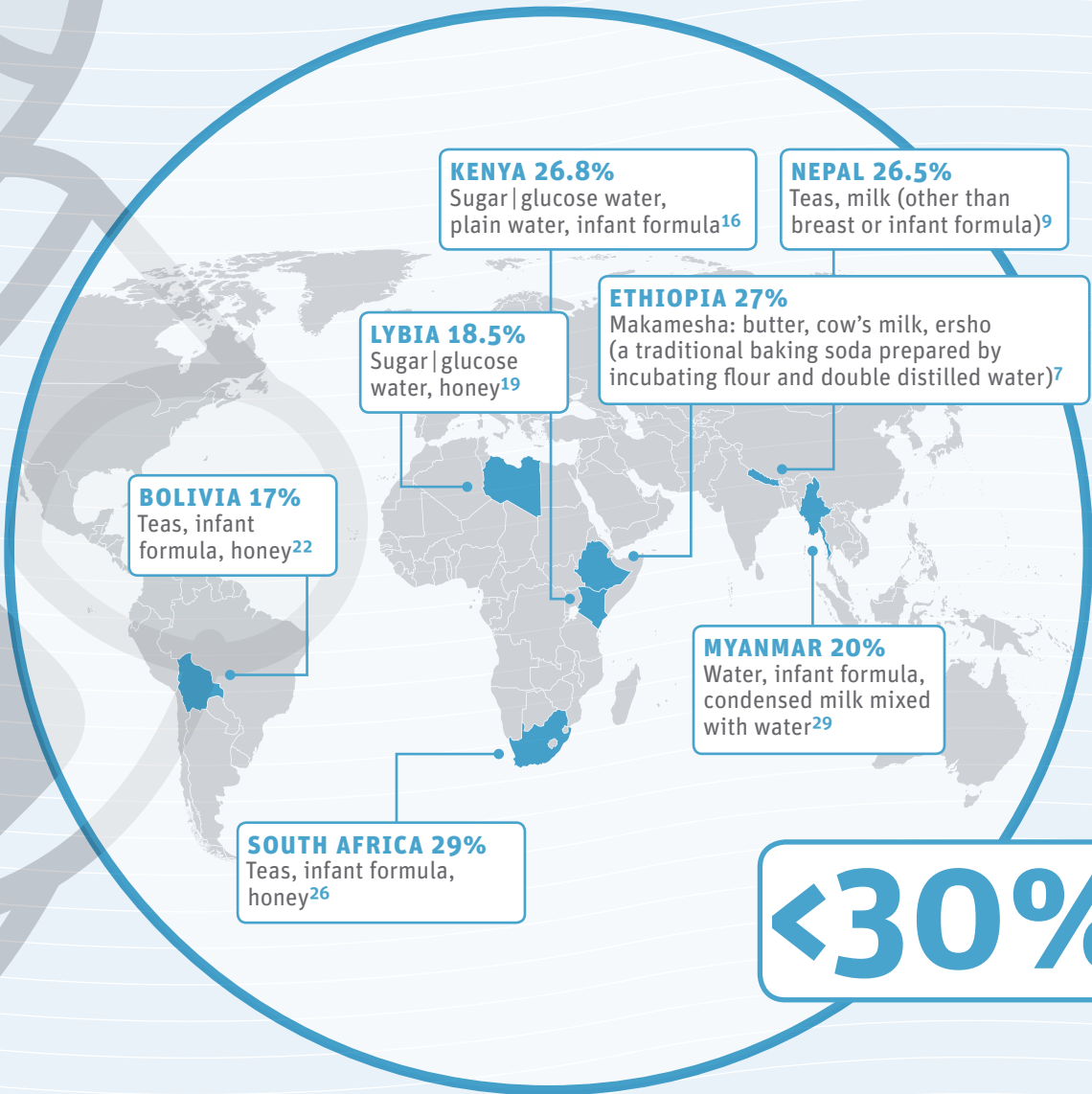
\*Given as liquid feeds







>70%



<30%

# To WASH or Not to WASH

**Klaus Kraemer**

Managing Director, *Sight and Life Foundation*

“Everything should be made as simple as possible, but not simpler”

*Albert Einstein*

At the end of April, I attended the American Society for Nutrition’s scientific sessions at Experimental Biology 2017 in Chicago. Christine Stewart (University of California, Davis) and Rebecca Stoltzfus (Cornell University, Ithaca) organized an excellent session, presenting the long-awaited results of two large-scale, cluster-randomized trials in rural Bangladesh and Kenya, integrating WASH (Water, Sanitation, Hygiene) and nutrition interventions. The WASH Benefits Study<sup>1</sup> aimed to systematically investigate whether water quality, sanitation, handwashing, and improved infant and young child feeding practices (IYCF) can, independently or in combination, improve linear growth in the first two years of life. (IYCF covers breastfeeding and improved feeding practices, including the provision of lipid-based nutritional food supplement [LNS].) The rationale is that repeated bouts of infectious diseases, such as diarrhea, environmental enteric dysfunction (EED), and macro- and micronutrient deficiencies are thought to be leading causes of child stunting. The Sanitation Hygiene Infant Nutrition Efficacy (SHINE)<sup>2</sup> trial in Zimbabwe, with a comparable design but a stronger focus on mitigating exposure to chicken feces, was also on the agenda, but the results of this trial will only be available later this year.

The WASH Benefits study team invested considerable time and effort in reducing child exposure to enteric pathogens, viz. through the provision of plastic potties for children, improved pit latrines, water chlorination, and handwashing stations with soapy water near the latrines and the kitchen. Moreover, a behavior change communication (BCC) component was central to the study, emphasizing IYCF, hand washing after toilet use and before food preparation, the use of latrines for defecation, and the safe disposal of feces from the compound. Nonetheless, alone or in combination, the WASH interventions did not prevent linear

growth faltering at 12 and 24 months. However, the LNS which was added to the child’s complementary food did have a small, but consistently significant, positive impact on linear growth.

**What happened?**

Without any doubt, the reduction of child stunting is a thorny issue. I still believe that WASH interventions are important. WASH interventions appear to be sufficient to prevent infectious diseases such as diarrhea (interestingly, this was the case in Bangladesh, but not in Kenya), but EED prevention may require measures which are more comprehensive; fecal-oral transmission of pathogens appears to be difficult to control. In Bangladesh, the WASH Benefits Study reported frequent hand-mouth contact by children, indicating a potential source of bacteria, viruses, and parasites. Unfortunately, the results are pending on EED biomarkers and soil-transmitted helminth infections from the WASH Benefits Study and the SHINE trial. They will provide important information on future directions.

“We must better understand the underlying causes of stunting, including the biology of linear growth”

Evidently, in order to effectively reduce stunting, we must better understand the underlying causes of stunting, including the biology of linear growth. Danaei and co-workers<sup>3</sup> identified 18 key risk factors of stunting from an analysis in 137 developing countries, grouped in five clusters (maternal nutrition and infection, teenage pregnancy and short birth spacing, fetal growth restriction and preterm birth, child nutrition and infection, and the environment) with fetal growth restriction, preterm birth and environmental factors (WASH, use of biomass fuel) being the most prominent.

**Great progress**

Some countries have made tremendous progress in terms of reducing stunting, while others have not. Hossain and colleagues<sup>4</sup>





WASH interventions may not be enough on their own to prevent environmental enteric dysfunction (EED).

evaluated the average annual rate of reduction (AARR) for stunting in 19 low- and middle-income countries, which varied from 0.6% to 8.4%. Successful programs in countries (AARR  $\geq$  3%) were characterized by a combination of political commitment, multisectoral collaboration, community engagement, a community-based service delivery platform, and good program coverage and compliance. At a recent nutrition event during the World Bank-IMF's spring meeting, Rwanda set the goal of reducing the stunting rate from 38% to zero in the next three or four years.<sup>5</sup> Although Rwanda has effective policies in place and has made good progress as far as stunting reduction is concerned, with the current trajectory, additional efforts will still be required to meet the 2025 World Health Assembly goal of 24%.<sup>6</sup> Given the tremendous effect that reducing stunting has on the development of human capital, I hope that this ambitious goal is indeed achievable.

.....  
 “Stunting should be  
 a development indicator  
 rather than a nutrition  
 target of SDG2”  
 .....

#### Context matters

We must better understand the context children are living in and design interventions accordingly. We could also decide simply to wait until stunting goes away, while poverty declines, since a GDP (gross domestic product) increase of 10% is associated with a drop of 6% in the stunting rate.<sup>7</sup> I know this is not a good idea, but infrastructure programs – when funding is available for them as a consequence of increased GDP – may be as important as cumbersome BCC interventions. For example, in a large-scale program run by the Mexican government to improve housing, dirt floors were replaced with concrete.<sup>8</sup> The replacement reduced parasitic infection and diarrhea, and also reduced anemia and improved child cognitive development, but no effect on anthropometric indicators was observed. Simple-solution concrete floors are much easier to keep clean. Recognizing the many underlying factors of stunting, I am adamant that stunting should be a development indicator rather than a nutrition target of SDG2 (see *Sight and Life* 30 (1), 2016).

Over the last year, I have been involved in a group which has been studying the serum metabolome of stunted and non-stunted children in Malawi.<sup>9–12</sup> Stunting was associated with low levels of all essential amino acids, choline, carnitine, arachidonic acid, and docosahexaenoic acid. These nutrients are important for protein synthesis, growth (including long-bone growth), energy formation, and brain development. A com-

mon feature of all these nutrients is that they are abundantly present in animal-source foods, such as eggs, milk, fish, and meat. These results therefore corroborate the long-known benefits of nutrient-dense animal-source food for complementary feeding.<sup>13</sup>

Could EED, which causes epithelial atrophy, malabsorption, and inflammation, be key to the management of stunting? Our metabolomics work has demonstrated that confirmed EED is associated with major metabolic alterations in the Malawian cohort.<sup>14</sup> In addition to bacteria, viruses, and parasites, aflatoxin – one of the most potent and stable toxins on earth from the *Aspergillus* species – is thought to contribute to EED. Billions of people are exposed to aflatoxin daily, and the problem seems to be growing rather than diminishing. We also know little about what role an abnormal gut microbiota might play in EED. Beneficial gut barrier *Bifidobacteria* have been associated with improved weight gain in formula-fed infants.<sup>15</sup> It is therefore worrying that, according to the work of Michael Zimmermann's group from ETH Zurich, iron supplementation even in low doses reduces *Bifidobacteria* and *Lactobacilli*, and increases pathogenic bacteria such as *Escherichia* and *Shigella* in the microbiome of Kenyan children.<sup>16</sup> The good news, however, is that Daniela Paganini, who is from the same group, reported at Experimental Biology that the addition of prebiotic galactooligosaccharide can mitigate the negative iron effects on the microbiome, and that it even improves iron absorption.

.....  
 “(Micro)nutrient-dense animal-  
 source food should be available  
 for complementary feeding”  
 .....

There is no simple solution to the issue of stunting. In addition to poverty alleviation, leading to a cleaner household environment, (micro)nutrient-dense animal-source food should be available for complementary feeding. It is also conceivable that some nutrients at higher levels or special additives such as pre- and probiotics, choline or essential fatty acids would provide an advantage for children living under environmentally compromised conditions. Albert Einstein once observed that “Everything should be made as simple as possible, but not simpler.” Much more work remains to be done, both in the lab and in the field.

With warm regards,



Klaus Kraemer  
 Managing Director, *Sight and Life* Foundation

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# The Social Marketing of Micronutrient Powder in Sudan

Generating consumer insights to address  
micronutrient deficiencies

## Lead author

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## Key messages

- > Sudan is among the 34 countries that together account for 90% of the global burden of malnutrition.
- > In 2013, the Sudanese Ministry of Health, in collaboration with the World Food Programme, piloted the introduction of micronutrient powder in three localities of Sudan's Red Sea state.
- > Formative research was conducted to gain consumer insights to inform the design of social marketing strategies to generate demand for micronutrient powders.
- > The research allowed an understanding of the consumer experience which was essential for reshaping program services and communication activities to fit beneficiary requirements.
- > "Pull" strategies could be implemented before "push" strategies began, so that service providers and community leaders were prepared to respond to people's motivations to enroll in the new MNP program.
- > Strategically engaging national government stakeholders in the process led to strong buy-in, with the national government actively supporting the launch of the program.

The home fortification program with MNP single-dose sachets is currently being implemented in seven states across the country with the aim of reaching approximately 300,000 children under the age of five in 2017. WFP is now engaging with the private sector to develop a retail strategy and introduce MNP on the Sudanese market, ensuring an exit strategy and long-term sustainability.

### Malnutrition in the Sudan

Sudan is among the 34 countries that together account for 90% of the global burden of malnutrition.<sup>1</sup> Out of 184 localities in the country, 59 have a prevalence of Global Acute Malnutrition (GAM) among children aged 6 to 59 months which is above the emergency threshold of 15% as defined by the World Health Organization (WHO). Nationally, stunting affects 38% of all children under five, with geographical disparities across regions.<sup>2</sup> Iron, vitamin A and iodine deficiencies are widespread among vulnerable population groups. Iron deficiency anemia (IDA) affects 88% of preschool children and 58% of pregnant women,<sup>3</sup> while 28% of preschool children and 16% of pregnant women are vitamin A deficient.<sup>4</sup> Only 9.5% of households consume iodized salt, while over a million infants remain unprotected from iodine deficiency disorders.<sup>5</sup>

The traditional Sudanese diet contains cereals (sorghum or millet), beans, meat, fish, fruits and vegetables. However, widespread food insecurity limits access to nutritious food. Economic constraints cause families to sell rather than consume their livestock and produce, resulting in dietary imbalance compounded by culturally accepted food taboos.<sup>6</sup> Poor health care coverage and inadequate infant feeding practices further exacerbate the situation.

### Addressing micronutrient deficiencies in the Sudan

In 2013, the Ministry of Health (MoH) in collaboration with the World Food Programme (WFP) piloted the introduction of micronutrient powder (MNP) in three localities of the Red Sea state. Targeting caregivers at health and nutrition centers, the aim was to increase the consumption of micronutrients in children aged 6 to 59 months. Caregivers received a monthly take-home ration of locally produced flour (3 kg) composed of maize and beans fortified with micronutrients. In addition, caregivers could attend sessions on flour preparation and Infant and Young Child Feeding (IYCF) education. Six months into the program, attendance rates and product acceptance remained low. As a result, the MoH and WFP recommended discontinuing the preparation and distribution of flour in order to reduce the opportunity cost to caregivers, and re-designing the program, introducing home-based fortification with single-dose MNP sachets in order to increase uptake and consumption.

### Understanding the MNP consumer by means of social marketing research

#### Research aim

Before introducing single-dose MNP sachets to caregivers, formative research was conducted to gain consumer insights which would inform the design of social marketing strategies to generate MNP demand and encourage positive child feeding practices.

#### Research approach:

##### Putting the audience at the center

To engage key stakeholders from the MoH as well as community mobilizers in the research process, the project started with a workshop aimed at reaching a common understanding of the social marketing principles that were to be applied to the research. This engagement was critical to ensure national buy-in and ownership at all stages of the project.

.....  
**“The project started with a workshop aimed at reaching a common understanding of the social marketing principles that were to be applied to the research”**  
 .....

Combining ideas from commercial marketing and the social sciences, social marketing is the systematic application of interactive principles and techniques that harness audience participation for understanding, creating, communicating and delivering value to achieve specific behavioral goals for a social good.<sup>7</sup> In social marketing, the audience is viewed as decision-makers with choices, rather than students to be educated by experts who know what is best and will tell people what to do.<sup>8</sup>

A fundamental requirement in the scoping of a social marketing strategy is to establish a complete picture of people's lives: what is important to them, what moves and motivates them, and what causes and influences not only the problem but also the desired behavior.<sup>9</sup>

This formative research adopted an audience-centered approach in order to understand the reasons for low program acceptance, gain insight into people's needs and desires, and gauge how the new MNP product needed to be positioned to naturally fit within people's comfort zones and gain acceptance by the public. In other words, research was designed to discover how to make the novel seem familiar.

#### Methods: Understanding the audience in the round

To obtain a 360° understanding of the target audience, the sam-

**TABLE 1:** Research methods and sampling

	Total no. of participants	User caregivers	Non-user/ dropout caregivers	Community leaders	Pediatricians	Community mobilizers & health center staff
<b>Individual interviews</b>	50	20	15	9	0	6
<b>FGDs<sup>a</sup></b>	57	15	10	0	10	22
<b>Home trial</b>	16	8	8	0	0	0

<sup>a</sup> A total of seven focus group discussions (FGDs) were conducted – two FGDs with caregiver users, one FGD with non-users, and one mixed user/non-user FGD. In addition one FGD was conducted with pediatricians and two FGD's with community mobilizers.

pling included caregivers who used to receive fortified flour at health and nutrition centers but dropped out of the program, as well as satisfied caregivers. Both groups were important to help develop an understanding of existing barriers and perceived benefits to uptake of health and nutrition services, what drove retention and loyalty, and what needed to be changed in the new program design to increase uptake of single-dose MNP sachets. The sample also included caregivers who had never used fortified flour, with a view to gaining insight into their behaviors and perceptions around child feeding and health care, acknowledging they would be the potential users of single-dose MNP sachets in the future.

In addition, a 29-day home trial with MNP single-dose sachets was conducted with caregivers, to gain a real-time understanding of perceived benefits and constraints around the daily use of the new MNP product.

Interviews with key community influencers (religious leaders, community chiefs, natural healers) and pediatricians complemented consumer insights with information about the consumers' social network and their motivations for engaging in activities to positively influence the target audience.

A total of 123 people – including caregivers, community influencers, pediatricians, community mobilizers and health center staff living in targeted communities of the Red Sea state – participated in individual and focus group interviews between March and June 2014 (Table 1). The interview topic guides were adapted to each audience group, and covered multiple dimensions of people's lives, beliefs and values, as well as ideas for promoting the new MNP.

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**“The research looked at both the consumer demand side (push) and the service provision side of MNP (pull)”**  
 .....

Data were collected in Arabic by bilingual data collectors. Findings were translated, transcribed and coded using the qualitative software NVivo<sup>10</sup> and then analyzed, drawing on principles of social marketing and Grounded Theory.

#### *Analyzing demand and supply: The “push” and “pull”*

One way to identify areas relevant to a social marketing strategy is to look at the consumer “push” (i.e., what currently encourages people to use MNP and to practice positive child feeding practices) and a product service “pull” (what attributes does the promotion and provision of MNP require in order to be able to attract people to use the services). This notion can also be expressed as addressing both supply and demand.

To get the full picture of the MNP consumer journey, the research looked at both the consumer demand side (push) and the service provision side of MNP (pull).<sup>11</sup> The latter included mapping the mechanisms of service provision and information-sharing practices at health center level, as well as analyzing community mobilizers' awareness, knowledge and motivation to engage in the program.

#### **Fatma Hussein<sup>12</sup>**

**Age: 29, married**

**Number of children: 3**

**Total number of adults living in household: 4**

**March 23, 2014, Assotriba, Port Sudan, Sudan, 08:00 am**

#### **This is Fatma's story**

Fatma dropped out of the fortified flour program a few months before she met the research team to tell her story at the Assotriba Health & Nutrition Center.

.....  
 The first time Fatma heard about the fortified flour was from



her neighbor. Fatma and her friends from the neighborhood often gather for tea and a catch-up. Fatma used to receive the fortified flour for her two-year-old, but soon her child's fecal matter and urine began to color, and one day her child had diarrhea. Her mother-in-law suggested that the fortified flour was the problem. As a result, Fatma decided to discontinue using it. When she heard that her neighbor had also discontinued her use of it, she felt confirmed in her decision.

.....

Fatma's husband takes care of the finances, but when it comes to food shopping, Fatma is in charge. Although the family is financially constrained, her children's food preferences and her own perceptions of what is good and healthy dominate her choice of meals. When she believes that something causes adverse effects like diarrhea, or when a child rejects a meal, she stops serving it. When her children are sick, she first consults her mother-in-law. Doctors are a last resort for her. Fatma's family does not believe in illness prevention. "This is all in God's hands," she says. But she believes there is a link between nutrition and health. "Good food can help children grow, gain weight, be active, happy and smart," she says. When her children are well, Fatma has more time for herself. When they grow up, she wants her children to become doctors or teachers.

.....

Fatma examines the new MNP sachet. "It is very small," she says. "Does it contain all the things my child needs?" She likes the fact that she can use it with any meal, such as her children's favorite *Kisra* porridge.<sup>13</sup> "This is better than the old one. I will try it, if it doesn't give my child diarrhea."

### Research insights

#### *A consumer insight snapshot*

Speaking to caregivers like Fatma (see box below) revealed why they may choose to discontinue the use of products and services offered at the health center, what could have prevented this decision, and how the new MNP service provision and promotion can be designed to better fit the thinking of caregivers like Fatma.

By seeing the target audience in the round, the research team was able to identify a number of key insights which helped shape strategies to generate MNP demand and improve service provision.

### Social marketing insights

#### *From product-centered to consumer-centered promotion*

When Fatma and other caregivers dropped out of the MNP program, they usually had one reason in common: They had difficulties recalling any product benefits that they personally valued. As a result, the program lacked credibility and value in the

eyes of consumers like Fatma, who were more easily convinced to drop out. This was not the case for caregivers who reported personal perceived benefits associated with the product, such as visible child growth, tangible weight increase, glowing skin, increased physical activity, appetite gain and emotional benefits for the mother.

At the time of research, however, community mobilizers implemented a product-focused approach for promoting MNP, highlighting its nutrition properties rather than consumer benefits, using technical terminology such as anemia and malnutrition as well as concepts of disease prevention, none of which were common or easily accepted in the target community.

The lack of a consumer-centered brand and benefit-focused promotion were key barriers to acceptability, retention and positive perceptions around the MNP fortification program in the community.

The importance of consumer-benefit-focused, timely communication, especially during the product initiation phase, was further confirmed during the home trial with MNP single-dose sachets: Participants who were regularly consulted by community mobilizers trained in audience-centered communication were more likely to report positively on the product.

.....

**“Participants who were regularly consulted by community mobilizers trained in audience-centered communication were more likely to report positively on the product”**

.....

### *Service provision*

An analysis of the MNP service provision at health & nutrition center level revealed that not all community mobilizers and health center staff were equally briefed about MNP, and most lacked the necessary skills and communication tools to promote the program in a consumer-friendly way. None had personal experience with the product, and as a result, they often paraphrased product properties rather than using their own local concepts and terms to describe product benefits for the consumer. For the research period, all community mobilizers were given the opportunity to sample MNP single-dose sachets and asked to keep a diary of their experiences. In role-play sessions, community mobilizers engaged in reshaping their messages and communication tactics so as to integrate their own experiences. Generating these “self-made” techniques was an important exercise to help gauge the level of motivation, self-efficacy and creativity required for building communication capacity in the long term.

FIGURE 1: The VITAMINO brand development journey



### Community engagement

Interviews with religious and community leaders revealed that, despite showing great interest in being ambassadors for good nutrition in the community, most lacked the knowledge and tools for active participation, especially in religious institutions.

### Translating research insights into action: Social marketing strategies in the mix

With a 360° picture of the MNP target audience, project stakeholders agreed that in order to increase MNP uptake and encourage positive behavioral change, the following needed to be in place: a culturally appropriate, consumer-driven brand for the new MNP; a sustainable strategy to improve MNP service provision; and a culturally appropriate strategy for active community engagement.

### Building a brand for MNP

In collaboration with a local marketing agency, an MNP brand and brand strategy were developed, utilizing research insights. A pre-testing exercise with the target audience helped to define and refine the brand name and visual identity (see [Figure 1](#)). The final brand, VITAMINO, focuses on building credibility and trust in MNP, with a culturally appropriate identity and a benefit-focused positioning. The brand is supported by a multimedia communication strategy, including a television talk show on good nutrition and corresponding radio spots.

As a next step, VITAMINO will be expanded to include branded plates, cups and cutlery specifically designed for children, so as to improve complementary feeding and consumption compliance of MNP at household level.

### Improving MNP service provision through skill building

To improve MNP service provision at health center and community level, a capacity-building methodology was designed in 2015. The SPLASH!<sup>14</sup> is a participatory train-the-trainers methodology to empower community mobilizers and mothers at community level with the communication skills needed to act as ambassadors for good nutrition and to help generate demand for MNP by putting the needs and concerns of the target audience first.

### Harnessing religious and cultural engagement

To actively engage religious community leaders, it was important to meet them within their comfort zone by considering possible sensitivities to some nutrition and health themes as prescribed by religion and culture. A sermon guide, infused with nutrition and health issues as supported by the Quran, was developed for this purpose. Selected imams were trained to train others in turn to inform and educate the congregation on nutrition and health.

### Conclusion

Extending the research approach beyond an analysis of barriers such as knowledge and attitudes allowed an understanding of the consumer experience which was essential for reshaping program services and informing communication activities to fit what the audience wants and needs.

By understanding both the demand and supply side, “pull” strategies could be implemented before “push” strategies began, so that service providers and community leaders were prepared to respond to people’s motivations to enroll in the new MNP program.

Strategically engaging national government stakeholders in the research process as well as program development led to strong buy-in into the principles and significance of social marketing and ownership of the home fortification program implementation as a whole. As a result, the local government actively supported the launch of the program, with its own strategy for community mobilization, using local nutrition champions as credible advocates.

The home fortification program with MNP single-dose sachets is currently being implemented in seven states across the country with the aim of reaching approximately 300,000 children under the age of five in 2017. WFP is now engaging with the private sector to develop a retail strategy and introduce MNP on the Sudanese market, ensuring an exit strategy and long-term sustainability.

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### Notes on the text

12. For the purposes of this article, the data collected during one interview were summarized and key insights highlighted. The interviewee's name was modified for reasons of confidentiality.
13. *Kisra* is a traditional Sudanese porridge made of durra or wheat. It is usually served with meat.
14. The SPLASH! methodology is a peer-led dialogue approach, anchored on seven key principles:
- S** – Being Sensitive to people's culture, religion and gender-defined roles while supporting the target audience with focused communication to avoid antagonizing them;
  - P** – Provoking consumers to share and ask questions;
  - L** – Listening skills that allow the facilitator to hear what is not being said but is implied;
  - A** – Being Articulate, without ambiguity;
  - S** – Providing feedback immediately (*Speedback*);
  - H** – Being Honest enough to refer rather than fumble with technical information; and
  - !** – Being innovative in the delivery of nutrition messages that are focused on what the consumer needs and values.

To date, 6,900 community mobilizers and peers have been trained in this approach in ten states in Sudan.

# Market-Based Sales of Nutritional Products in Low-Income Settings

## Acceptability and feasibility from consumer focus groups in Haiti

### Adrienne Clermont

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### Introduction

Lipid-based nutrient supplements (LNS) have grown in popularity in recent years as a promising intervention to improve the nutritional outcomes of children in low-income contexts where the local diet is lacking in key macro- and micronutrients. LNS products provide both energy and micronutrients, and have been shown to improve linear growth when consumed by young children.<sup>1,2</sup>

Such products are currently distributed primarily through humanitarian assistance programs, whose scope and duration are limited by the availability of donor funding. For LNS manufacturers, the fluctuations and unpredictability of a donor-driven funding stream have led to exploration of other potential revenue sources. In particular, there is growing interest in selling LNS products through market mechanisms, directly to consumers, in a financially sustainable manner – that is, at a minimum, recouping all production and distribution costs through sales revenue. This would also allow for greater reach and penetration than current programs, potentially leading to a more significant nutritional impact at a population level.

This article examines the case of Haiti, a country with intensely high levels of poverty and food insecurity.<sup>3</sup> If market-based sales of LNS were to prove viable in Haiti, this would not only provide a new and sustainable revenue stream for local LNS producers such as Meds & Food for Kids (MFK), based in Cap-Haitien, Haiti, but would also provide an affordable source of high-quality nutrition for low-income Haitians and an alternative to existing snack foods of poor nutritional value.

### Study methodology

As part of a broader project carried out by Edesia (a US-based LNS producer) and MFK to evaluate the commercial feasibility of selling fortified, peanut-based LNS directly to consumers in Haiti, we conducted focus groups to better understand food purchasing and consumption behaviors among low- and middle-income Haitians. The primary objectives were to understand whether market-based sales of LNS would be affordable, appealing, and culturally appropriate. Formative research of this type is crucially important;<sup>4,5</sup> if any of these factors are found to be lacking, sales will not be viable.

## “There is growing interest in selling LNS products directly to consumers”

Field research was carried out in October 2014, with a total of 19 focus groups conducted, including 11 with women (pregnant women and female caregivers of young children), seven with school-age children, and one with male caregivers. Data collection took place in four cities across Haiti – Port-au-Prince (seven groups), Gonaives (four groups), Cap-Haitien (six groups), and Mirebalais (two groups) – and included urban, peri-urban, and rural settings. Focus groups were led in Creole and translated into English based on audio recordings. Data were uploaded into Saturate ([www.saturateapp.com](http://www.saturateapp.com)) to code dominant themes from the focus groups and carry out analysis.

### The food landscape in Haiti

If there is one consideration that rises above all others in the idealized Haitian diet, it is a veneration for local agricultural products, called “natural foods” in Creole. Focus groups unanimously cited local foods as the best source of vitamins, partic-



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Foods including sardines, spaghetti, rice, and crackers for sale in Cap-Haitien

ularly natural juices, fruits and vegetables, Haitian fish, Haitian eggs, and Haitian chicken. One participant stated that if she eats one Haitian egg in the morning, she feels full of vitamins and energy, but even three or four imported eggs cannot compare to this. This food category can be contrasted both with imported agricultural products and with processed or packaged foods (made in Haiti and abroad).

Natural and man-made disasters have taken heavy tolls on Haitian agriculture, which, combined with a continuing influx of subsidized agricultural products from the USA and other countries, has made Haiti dependent on imports for more than 50% of its food – including up to 80% of its rice supply, one of the most commonly consumed staples.<sup>3</sup> Despite typically being sold at higher prices, Haitian products are clearly preferred (at least in the ideal):

.....  
*“Even though we are eating imported white rice, it is bad and it does not have any vitamins. Local rice has lots of vitamins, but we still buy the imported kind. There is a big difference when you cook it, you can add vegetables and bean sauce*

*to the imported rice to make it look pretty and healthy, but one hour after eating it you will feel even worse. But with our rice, if you eat it with vegetables, you will feel strong.”*  
*(Focus Group #16, female, rural Cap-Haitien)*

.....  
 Packaged foods are mainly imported from abroad and are thought to be highly processed and lacking in nutrients; however, given their low prices and ubiquity among street vendors, they are an important part of many people’s diets. Frequently purchased packaged foods include spaghetti, *bonbon sel* (crackers), *bonbon dous* (cookies), cornflakes, condensed milk, powdered milk, tomato paste, soft processed cheese, sardines, hot dogs, canned corn and beans, and canned fruit. Packaged beverages include artificial juice such as Tampico and soft drinks and energy drinks such as Coca-Cola and Malta. Despite being able to name a variety of packaged products, participants had a high level suspicion of these products. Most participants stated that they are not healthy because they are not “natural,” and that the unknown chemical products and preservatives in them can make people sick. Im-



ported products are looked on with mistrust, particularly those made in the Dominican Republic, but Haitian food processors are not trusted either, due to the lack of regulations in the country.

*“I do not buy any packaged or processed food to give my child because I visited a doctor, and he told me that a banana has more vitamins than a yogurt. A lot of those things that you see in the supermarket, you don’t even know what’s in them. Some of the foods are meant to make a child fat and some are meant to make a child skinny. You don’t know which are good for your child.”*

*(Focus Group #4, female, peri-urban Port-au-Prince)*

Because of the extreme poverty of many Haitian consumers, there is a constant tension between the ideal of (more expensive) “natural foods” and the reality of (cheaper) imported and packaged foods. The need to fill one’s belly or provide a quick snack for hungry children can often trump what is known to be the healthiest option. Participants acknowledged this tradeoff,

with one saying: “Those types of [processed/imported] food will fill you up, but they are not rich in nutrition.”

#### Facing competitors in the snack food market

Due to its small size (participants were shown sachets ranging from 20 g to 75 g), the LNS product was perceived to fall into the category of snack foods, which has important implications for understanding the most relevant competitor products and establishing a viable price point. In particular, it is impossible not to compare LNS to *mamba*, the locally made peanut butter that is ubiquitous among street vendors and sold along with bread for just five to 10 gourdes (US\$0.11–0.21).

The concept of eating LNS directly from the sachet is not comparable to other snack foods on the Haitian market, but it did not seem to present a significant problem during the focus groups. Most participants said they would be willing to eat directly from the sachet, and that this would be particularly appealing to children (“that’s the fun part for the kids – it’s like a lollipop”). But the majority of participants said they would be more likely to squeeze the contents of the sachet onto bread,



A food vendor’s stand outside a health clinic in a slum area of Gonaives; snack foods for sale include cookies, crackers, assorted candies, popcorn, fried dough, cornflakes, bananas, bread, peanut butter, and gum



*casav* (manioc flour bread), or *bonbon sel*, the way that Haitian peanut butter is traditionally consumed.

### Product acceptability

The focus groups included a taste test component of a prototype LNS product (made in the USA by Edesia). The vast majority of reactions to the product were positive. Participants immediately recognized that the product was not Haitian-made peanut butter, both by taste (“it’s weaker”) and by color (“it’s too pale”) – but they said that this was not a problem, particularly once they were told that the product contained milk, soy, vitamins, and other ingredients along with peanuts. Many participants said the taste was “delicious,” and that children especially would love it because of its sweetness. Virtually all participating children and about half of adults finished the entire sachet of product, rather than just taking one taste.

Participants raised concerns that small children should not consume too much of the product because it could make them sick or give them diarrhea. There was some confusion about the product due to its similarity to Plumpy’Nut®, which is specifically intended for children with acute malnutrition (and which participants in 10 out of 19 focus groups said they had seen before, either in clinics or for resale in markets); caregivers were concerned that healthy children should not be eating the product as a result.

### Product pricing

There was a general consensus that the product must be sold for a low price that is competitive with other snack foods on the market. Participants stated that if the product were priced at five gourdes, “people would rush to buy it” and “kids will always ask you for five gourdes to buy it,” but at a significantly higher price sales would be slow and people would be reluctant to try the product. Over and over, participants displayed extreme price sensitivity as consumers:

.....  
*“If you say to someone, this costs five gourdes, and it’s good for all these things, at least they will try it once, because it’s only five gourdes. Now when you say it costs two dollars [10 gourdes], they will look at this little thing in your hand and they will say, ‘I could buy bread and peanut butter for only five gourdes and still buy something else with the rest.’”*  
*(Focus Group #13, female, urban Cap-Haitien)*  
 .....

Multiple groups mentioned that the sachets of peanut butter they had seen on sale in the market (presumed to be Plumpy’Nut®, which is 92 g in size) were typically sold at a price of two for 15 gourdes – so it would be difficult to sell the new product for significantly more. In addition, one can typically buy a full meal (such as a bowl of spaghetti) for 25 gourdes, so a

small sachet needs to fall within the “snack” price category rather than the “meal” price category in order for consumers to feel it is a worthwhile purchase.

.....  
**“The presence of vitamins and minerals in the product was highly valued by all focus group participants”**  
 .....

### Conclusion

The findings outlined above have several important implications for assessing the viability of market-based LNS sales in Haiti. First, consumers’ preference for Haitian-grown “natural” foods is extremely strong and can command a price premium. As a local LNS producer, MFK can capitalize on this by incorporating Haitian-grown peanuts into their production (something that is already underway at MFK<sup>6</sup>) and making this a prominent part of marketing campaigns. Second, the presence of vitamins and minerals in the product was highly valued by all focus group participants, and would set LNS apart from other packaged snack foods in Haiti that are largely devoid of nutrition.

Third, although this peanut-based product appears to be highly acceptable among Haitian consumers (particularly children), price would be a very significant limiting factor. The extreme price sensitivity observed among Haitian consumers is typical of low-income consumers, particularly for preventive health and nutrition products.<sup>7</sup> Existing snack foods such as cookies, crackers, and chips retail for between five and 10 gourdes, and although these lack the nutritional benefits of LNS, they are clearly perceived as the competitor products that consumers will compare it to. In addition, *pain mamba* (traditional Haitian peanut butter with bread) is already available everywhere and as a single purchase (whereas LNS and bread would have to be bought separately). Haitian consumers are unlikely to be willing to pay a price premium over other snacks, unless a very compelling case can be made for the superior nutritional value of LNS through intensive marketing communications.<sup>7,8</sup>

### Limitations

There are several limitations to the data gathered through the focus groups and presented here. First, focus group participants were recruited through a convenience sampling method; as a result, the focus groups do not represent a random sample of the Haitian population as a whole. However, all participants were part of the “popular class” (low- to middle-income) of Haiti. Second, there is some evidence that social desirability bias played a role in some participants’ responses. The desire to please the



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Shelling and sorting peanuts for LNS production at MFK's facility in Cap-Haitien

research team (particularly given the presence of a foreigner observing the focus groups) may have resulted in overly positive reactions to the prototype product. Finally, the focus group findings rely on self-reported information about behaviors; we were unable to observe actual food purchasing or feeding behaviors in order to corroborate this information.

### *The way forward*

This study comes at an important time, as both local producers such as MFK and “offshore” producers such as Edesia seek to diversify their product offerings and customer base in order to increase operational sustainability. At first glance, the results of this study are discouraging. The price point effectively set by Haitian consumers is very unlikely to be financially feasible. Even if a small quantity of LNS (e.g., 20–30 g) can be manufactured for a cost of less than 10 gourdes, it would be extremely difficult to remain at this price point when markups along the distribution chain are taken into account. Although the manufacturer may be a non-profit organization and thus simply seeking to break even on production costs, Haitian distributors and vendors – the latter often low-income women themselves – would need to be making a profit to be willing to take part in sales.

However, other aspects of the findings are more encouraging. The focus groups indicate that although price will be a significant constraining factor in consumers’ purchasing decisions, peanut-based LNS products are highly acceptable and could fill an important gap for “healthy snack foods” on the Haitian market. This is a promising finding for local and international LNS manufacturers, and for all actors in the humanitarian sector as they seek new ways to increase the scale and sustainability of nutritional interventions.

“Peanut-based LNS products are highly acceptable and could fill an important gap for ‘healthy snack foods’ on the Haitian market”

### **Acknowledgements**

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PARTNERS:





# Beyond Nutrition: Eating, Innovation, and Cultures of Possibility

**Edward F Fischer,**

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## Key messages

- > Food is about much more than macro- and micronutrients; it is intimately linked to identity and social relations.
- > In metrifying nutritional advice, care should be taken not to ignore the subjective and emotional components of food and eating.
- > Food is integral to identity, and attempts to change diets need to take this into account.
- > Culture should be seen not as an obstacle to health, but as a source of potential. Public health and nutritional interventions should work with, rather than against, this dynamism.
- > Beneficiaries should be treated as clients, customers and collaborators, as sources of inspiration and innovation as well as mouths to feed.

My Uncle Art invariably offers guests ice cream, no matter the time of year or temperature outside. He grew up during the Depression on a farm in Alabama. His family got their water from a well and cooked over a fire, but Art says they did not feel poor; they just did not have many things. Once a year, every Fourth of July, Art's dad would hitch up the mule and ride the wagon an

hour into the nearest town to purchase a block of ice. When he got it home, covered in hay, Art's mother would make ice cream.

For Art, the ice cream he keeps in his freezer is about more than milk and sugar, calories and fat: it carries a deep connection to his childhood and identity, more emotional and subjective than rational and calculating. His story reminds us that food is about much more than nutrients, and that some of the most important aspects of eating cannot be captured in numerical metrics.

As a cultural anthropologist, I came to the study of nutrition by way of the political economy of development among the Maya of Guatemala. More than half of all Maya children under five years old suffer from chronic malnutrition, a tragedy that someone studying development and wellbeing could hardly ignore. In this essay, I would like to share some anthropological observations about global health and nutrition. First, nutrition is not just about macro- and micronutrients; as food, it is also importantly about identity and culture. Second, culture should not be seen as an obstacle to health and nutrition, but as a source of possibilities and potential. And third, poor people are more than just poor – they are people too, and driven by desires as well as need. The most effective and sustainable efforts to improve nutrition and health take into account such social and cultural contexts as well as nutritional science.

## More than nutrition

Klaus Kramer enjoins us to focus on “food systems” as a whole rather than on one narrow aspect.<sup>1</sup> This is a recognition that poor nutrition is not just an over-abundance of macronutrients or a deficiency of micronutrients; it is also about poverty and exclusion, education and agriculture, politics and gender, and a whole host of other interrelated factors. (Likewise, poverty is not just a lack of income.) For example, the empty calories consumed in a soda in Hyderabad result from the collusion of many disparate processes beyond the physiological, from pop



“Food is about much more than nutrients, and some of the most important aspects of eating cannot be captured in numerical metrics.”





© Edward F. Fischer

Maya women making maize tortillas

culture appeal to international trade and global politics, from maize farmers in the American Midwest to trade negotiators in Geneva and multinational food corporations.

Philosopher Bruno Latour warns of the danger of “purifying” knowledge too much; he points out that while specialization can bring great scientific advances, it also carries the danger of becoming divorced from actual contexts.<sup>2</sup> Those of us working on malnutrition have to look beyond nutrition in the narrow scientific sense to better understand the context of the problems we want to solve. Nutrition is linked to cultural traditions and personal histories; to the natural environment and geographies of power; to concerns of health and wellbeing. Structural conditions as well as cultural practices frame food choices, and food is an intensely multidimensional (social, political, biological, environmental, cultural) aspect of life.<sup>3</sup>

### We are what we eat

Myths of origin passed down among the Maya of highland Guatemala recount several failed attempts to create humans

out of sticks and mud until the gods finally stumbled upon the life-giving force of maize. Maize is at the heart of the Maya diet to this day, both symbolically and materially. No meal is complete without a tall stack of maize tortillas, and it is taboo to waste maize: even to let a stray kernel fall to the ground is frowned upon.

Many of my Kaqchikel Maya friends claim not to feel truly full unless they eat a sizable quantity of maize tortillas. Some go further and claim that the *terroir* (preferably local) of the maize is also crucial to their sense of satiation. Ixq’anil, a friend from Guatemala, once came to the USA for a visit, and even the dense, black German bread my wife baked could not fill her up, so profound was her hunger for maize tortillas. This was a hunger for more than just nutrients, and an illustration that food is more than a vehicle for nutrients.

To paraphrase Claude Lévi-Strauss, food has to be good to think, not just good to eat.<sup>4</sup> That is to say, most people make food choices based not primarily on nutritional values but on symbolic and cultural values. Food is an especially intimate

area of daily life, deeply associated with family, hearth, and home. Dietary prohibitions such as keeping halal or kosher are important ways of demonstrating the boundary between in- and out-groups. Vegetarianism and veganism have become important markers of identity politics in parts of Western Europe and North America.

### “Food has to be good to think, not just good to eat”

Food preferences serve as a powerful symbol of identity, tightly linked to conceptions of the self and embedded in particular political economies. Thus, when we think about trying to improve nutrition and modify what people eat, we should keep in mind that this can be seen as a challenge to their sense of self and cultural autonomy. For example, many of the patients at my university’s hospital come from rural Tennessee. In an effort to promote better nutrition a few years ago, the administration replaced the McDonald’s on site with an Au Bon Pain. The move was felt as a slight by those patient families for whom McDonald’s and other “traditional” fast food chains serve as sources of comfort food. The subtle class and cultural connotations of the French-named replacement added a degree of discomfort for family members looking for a touch of familiarity in a foreign context. Hospitals should discourage unhealthy eating, and this was probably the right decision, but we need to be mindful of the full range of social and cultural implications of our attempts to change eating habits.

### “We need to be mindful of the full range of social and cultural implications of our attempts to change eating habits”

#### Food, love, and calories

Provisioning one’s family and loved ones with food is a way of expressing love and caring. Ethnographer Daniel Miller has followed North London shoppers on trips to the grocery store. He finds that the act of shopping, provisioning for others in the household, is a key means of communicating concern, affection, and love.<sup>5</sup> For lower income families, inexpensive packaged foods can serve as an affordable treat, a sign of love and devotion in a context of limited resources. What we might see as unhealthy junk food may be tied to a mother’s love for her children or a spouse’s affection for a hard-working partner.

Likewise, eating is most often a group activity, one in which an individual’s choices affect others. With nutrition policy and recommendations, we often focus on individuals, and specifically on individuals as rational and self-interested actors. But we need to also be attuned to the social and cultural contexts of food choices. In the context of eating together, change cannot happen with just the individual: it has to involve the whole family or domestic unit.

Anthropologist Emily Yates-Doerr calls attention to the “metrification” of nutritional messaging.<sup>6</sup> That is the tendency to reduce descriptions of food and nutrients to measurable quantities: calories and grams, percentages and numerical proportions. For most readers of this magazine, thinking about nutrition metrically probably comes naturally. But for many around the world, the metrics of macro- and micronutrients is not the primary frame through which they view food. If eating is also about family and friends, love and devotion, how do we translate these values and emotions into calories and kilograms? Something being “good for you” often is not sufficient to get people to change their diets.

Brazil’s national nutrition guidelines and publicity campaign illustrate one way to take into account a more holistic view of nutrition within the context of food culture. Eschewing pyramid diagrams and pie charts, when Brazil revised their dietary guidelines in 2014 they opted for ten broad principles. These include avoiding processed food as much as possible, cooking one’s own food, and eating with others. In their visual representations, they chose to depict balanced meals in terms of realistic plates based on foods that are regularly eaten by all social classes.



© Edward F. Fischer

Maize fields in Guatemala



### Culture as a source of possibilities

In global health, culture is often viewed as a barrier to treatment or an obstacle to health. Many well-intentioned interventions seek to “overcome” or “break down” cultural conceptions (about blood, or pills, or time, for example) in order to improve treatment and delivery. In this framing, culture is assumed to be an inalienable trait or a singular entity.

Rather than viewing culture as a static thing, we should see it as a flow or a dynamic assemblage, an ever-changing arrangement of imperfectly shared understandings and practices. It is important that we not reduce people to mere cultural automata; in living their lives, individuals the world over are not trying to recreate the past, but living for tomorrow, oriented toward the future in new and imaginative ways.<sup>7</sup> In this light, we can treat culture not as an obstacle to modern scientific practices, but as a source of potential change and possibility.

From a public health perspective, we may try to engage people through their beliefs and not contrary to them. Changing eating habits is difficult, and efforts to improve nutrition have a

better chance if they work with, not against, local food cultures. Poor nutrition (both under- and overnutrition) is often correlated with declines in traditional diets and increased consumption of inexpensive processed foods.

### “School gardens are highly effective at changing youth eating behaviors and long-term attitudes toward food”

One successful example of harnessing cultural energy to improve nutrition comes from the school gardens movement. School gardens can re-introduce traditional staples to children, while encouraging them to adapt them to their own lives and diets. While school gardens trace their history to 1840s Sweden, today they are most vibrant in Italy and the United States. Studies have shown them to be highly effective at changing youth eating behaviors and long-term attitudes toward food.<sup>8</sup>



Arroz, feijão, coxa de frango, repolho, moranga e laranja



Arroz, feijão, omelete, mandioca de forno



Arroz, feijão, peito de frango, abóbora com queijo e compota de jenipapo



Arroz, feijão, carne moída com legumes



Mother feeding child Maní+

### Poor people are more than just poor

“The poor” are people with hopes and desires and fears and uncertainties just like the rest of us. Nobel laureate Amartya Sen proposes that the goal of development should be for people to have the freedom to construct lives that they themselves value.<sup>9</sup> This means treating beneficiaries as clients, customers, and collaborators – sources of inspiration and innovation.

NutriPlus, a malnutrition project I started in Guatemala, has developed a collaborative model of social enterprise that incorporates local knowledge and solutions while building capacity. Working with the Instituto de Nutrición de Centro América y Panama (INCAP), we developed Maní+, a lipid-based nutritional supplement (LNS). Aimed at children six months to three years, the locally sourced and produced Maní+ product contains 6 g of protein, 16 g of carbohydrates, 14 g of fat, and 220 calories in each 40 g dose. The micronutrient mixture was formulated by Guatemalan nutritionists to specifically address the nutritional deficiencies encountered in rural Guatemala.<sup>10</sup>

As part of a holistic program, the Maní+ LNS is accompanied by an education program that includes mothers as collaborators in the process of improving their children’s nutrition. Rather than simply telling mothers what they should do, we share information and discuss and debate it. In one exercise, we rank items found in their kitchens in terms of nutritional value. Vegetable oil often tops the list; in exploring the reasons why, we find logical and reasonable explanations (it is expensive and high in fat and calories), which we can help put into the context of a complete diet. In these ways, mothers become empowered to make their own decisions. We conduct the focus groups in local languages and modeled on local systems of community organi-

zation. In workshops, mothers and facilitators actively construct a narrative of malnutrition in their communities in light of the data provided. Knowledge is thus co-created, and mothers feel more empowered to act.

The base of Maní+ is peanut paste. While peanuts are consumed as a snack in Guatemala (usually roasted and served with chili and lime), mothers in our early trials were put off by the texture of the paste format. Through focus groups and field tests, we refined the Maní+ formula to adapt to local tastes. In these efforts, we treated our potential beneficiaries as clients with their own preferences, driven by desire as well as need. We try to remember that beneficiaries of programs always have a choice; even if a product is given away, folks can choose not to use it, to feed it to their animals, or to give it to older siblings. For our program to be effective, mothers have to actively want to follow the regime, and thus our approach resembles that of a consumer goods company.

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**“We try to remember that beneficiaries of programs always have a choice”**

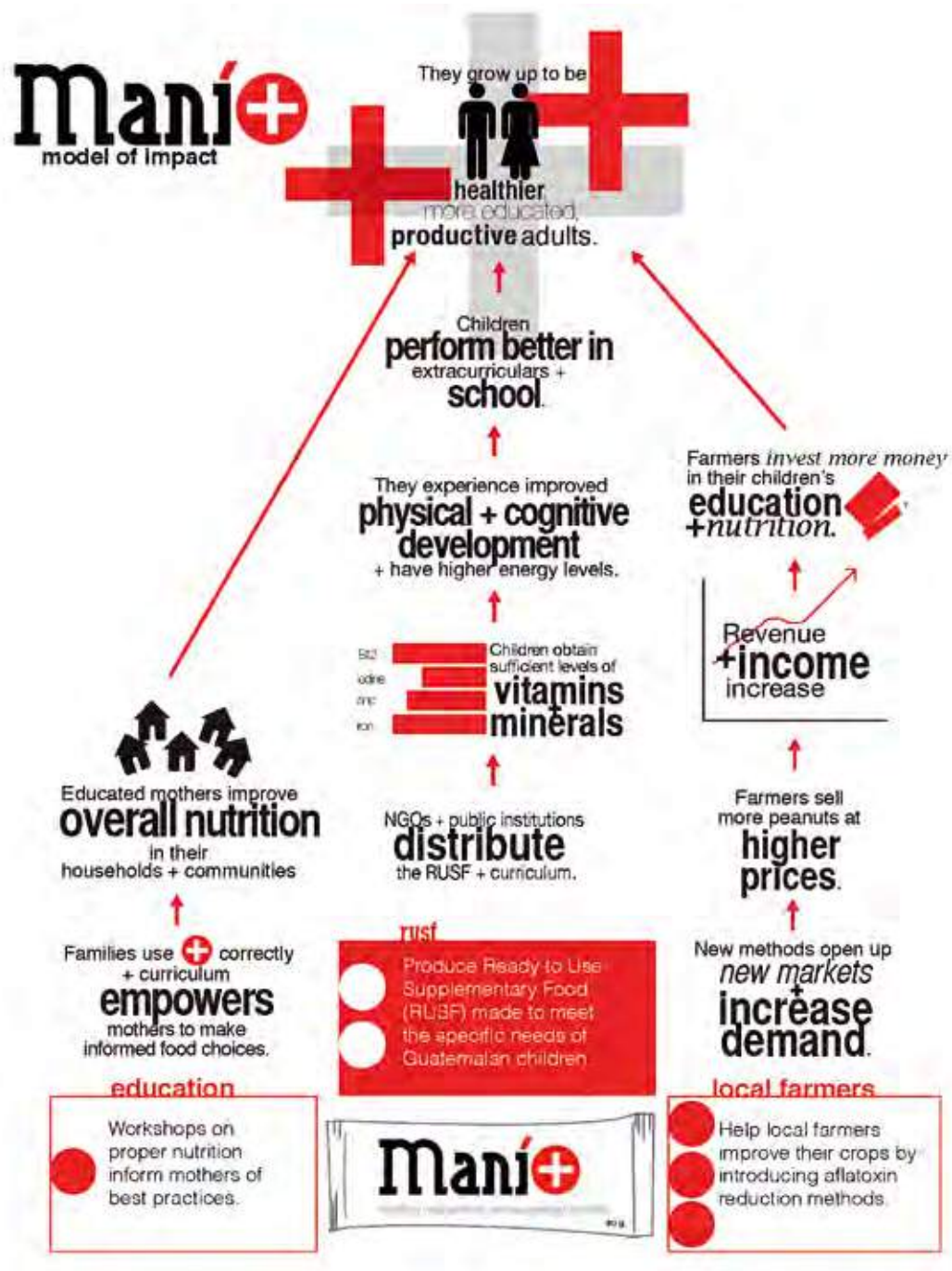
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Most revealing were the creative ways mothers developed to use the Maní+ LNS. One woman mixed it with banana to make a mush for her child; another blended into an atole (a traditional liquid porridge). We encourage these innovations and share them with other groups and communities. We take this as evidence of empowerment – mothers taking ownership of the LNS usage and of their capacity to adapt nutritional information and resources to the specific needs and likes of their families.

### Conclusion

These anthropological observations on food and nutrition have focused on three main topics. First, food is about much more than just macro- and micronutrients; it is intimately linked to identity and social relations. In this context, we must take care in our metrification of nutritional advice not to ignore the subjective and emotional components of food and eating. The stories of Uncle Art and Ixq’anil are cautionary tales. We have to be realistic about what we can change in people’s diets. Food is integral to identity and thus tricky to tinker with in public health schemes. Looking at eating holistically allows us to account not just for nutrients but for powerful social forces as well.<sup>11</sup>

Second, culture should not be seen as (merely) an obstacle to health, but as a source of possibilities and potential. While food cultures are closely linked to identity, they are also open to change. Public health and nutritional interventions should work with rather than against this dynamism. In fact, we might un-



Mani+ Model of Impact

derstand culture as a sort of strategy – always changing, moving in an intentional (but not fully predetermined) direction based on certain values – and look for strategic convergences. Finally, we need to recognize that poor people are more than just poor – they are people too, and driven by desires as well as need. We should, therefore, strive to treat beneficiaries as clients, customers, collaborators, as sources of inspiration and innovation as well as mouths to feed.

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 “We should strive to treat beneficiaries as clients, customers, collaborators, as sources of inspiration and innovation”  
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# Consumer Insight for Improved Nutrition

## Why consumer research is required to develop demand for nutritious foods among low-income consumers

### Hannah E Theobald

Scaling Up Nutrition Business Network &  
Global Alliance for Improved Nutrition, London, UK

#### Key messages

- > With one third of the world's population consuming poor diets, the world is facing a huge public health challenge and consequent economic challenge.
- > Improving the diets of more than two billion people requires, among other things, engaging food businesses to improve the nutritional content of foods and make nutritious foods more desirable.
- > To successfully reach and operate at the "bottom of the pyramid" food businesses need to develop a deep understanding of low-income consumers and their food purchase decisions.
- > The SUN Business Network (SBN) undertakes and collates consumer and market research and shares findings with its business members at the national level.
- > SBN envisages that more businesses will responsibly leverage the data and insights in their production of nutritious foods, particularly for low-income consumers.
- > It is also hoped that businesses will develop marketing and communications approaches which make nutrition more exciting, relevant and aspirational to the consumer.

With one third of the world's population consuming poor diets,<sup>1,2</sup> the world is facing a huge public health and economic challenge, which urgently needs to be addressed. As well as creating a health burden, accounting for six out of the top 11 risk factors for disease,<sup>3</sup> malnutrition has economic consequences, resulting from impaired learning ability and compromised school performance, reduced work productivity and increased healthcare costs.<sup>4</sup> It is estimated that malnutrition costs the global economy US\$3.5 trillion a year.<sup>5</sup>

While addressing malnutrition in all forms is firmly on the international development and public health agenda, improving the diets of more than two billion people is not an easy task. People at risk of consuming inadequate diets are those who have a low income and/or are poorly educated. With most food consumed across the world being obtained from the marketplace, from large, multinational companies to small street traders, businesses have a significant influence on the food that people eat. This influence extends across the whole value chain, from production, to manufacturing, distribution, marketing and communication through to the sale of the food that people consume, and ultimately impacting on diet and its nutritional value.

Engaging business to improve the nutritional content, quality, safety and affordability of food products is, therefore, an essential means of addressing malnutrition in all forms. Moreover, engaging business is essential to ensuring sustainable improvements to nutrition and the food system, to the benefit of all individuals. It is for this ability to shape the food system that business has a seat at the table and is recognized as a key participant in multisector action on nutrition and is an essential partner in supporting the realization of SDG2 ("End hunger, achieve food security and improved nutrition and promote sustainable agriculture"). The private sector offers a comparative advantage in that it knows how to market and sell products effectively – advantages which can be used to good effect to address malnutrition, particularly among low-income consumers.



© Hannah Theobald

Retail outlet in an urban slum where less nutritious foods are best-sellers.

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## “Engaging business to improve the nutritional content of food products is an essential means of addressing malnutrition”

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### Reaching low-income consumers with nutritious foods

A number of businesses are able to successfully reach low-income and other hard-to-reach consumers. Step into many a remote village or urban slum, and well-known national and international branded goods can be found, typically in small and affordable pack sizes, appropriate to the target consumer. These products are getting to hard-to-reach consumers because there is demand for such products. Vendors are purchasing products from distributors because they can quickly sell them on, and many products will have reached the vendor through informal and unofficial distribution channels, because demand exists but formal distribution networks do not.

While some of the food and food products sold in the marketplace will contribute positively to the nutritional status of the

individual, many are not the kind of products that public health nutritionists would promote. Products that reach urban slums or remote villages tend to be foods high in energy, saturated fats or salt, or sugar-sweetened beverages with no nutritional benefit beyond energy provision. Ultimately such products are demanded by consumers because they are desired. They are desirable, in part, because they are marketed well. They are marketed well because the manufacturer understands what the consumer wants, and the manufacturer tailors product development and messaging around this desire. It is a business imperative to understand the target consumer and what drives his or her food purchase decisions.

### Drivers of food purchase decisions

An individual's food purchase decisions are shaped or constrained by the social, policy and physical environment as well as by his or her nutrition knowledge and attitudes towards health and immediate family needs and circumstances.<sup>6</sup> Sobal and Bisogni state that food choice decisions are “multi-faceted, situational, dynamic and complex” but are rational and undertaken to maximize individual or family benefits.<sup>7</sup> Food purchase behaviors will vary between consumer groups, particularly between the top and the bottom of the economic pyramid. It is essential, therefore, that such differences should be taken into



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Understanding the consumer. What do they buy? Where do they buy? And how much do they spend?

consideration when developing products and marketing communications for these distinct consumer groups. For example, a key driver of food purchase for a high-income consumer may be health, while a priority for a low-income consumer may be satiety and not sending her children to bed hungry.<sup>8</sup>

Food purchase drivers, and consequent purchase decisions, influence diet diversity and quality and need to be addressed in order to improve diet and nutrition. People are not consuming better diets for a number of reasons, including a lack of motivation, a lack of available safe and nutritious foods (such as fruits, vegetables, dairy products, meat, legumes and cereals, including fortified staples), and the fact that nutritious foods are too expensive,<sup>1</sup> as well as the perceived lack of palatability of nutritious foods.

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**“Food purchase drivers, and consequent purchase decisions, need to be addressed in order to improve diet and nutrition”**  
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Businesses have a critical role to play in positively influencing food purchase decisions among low-income groups. However, many businesses target middle- and higher-income consumers when it comes to product development, distribution and marketing, and find it hard to adapt business models to reach lower-income consumers with affordable, nutritious offerings,

when in fact it is the low-income consumer in a city slum or remote village who requires innovations to help improve his or her nutritional wellbeing. While food and beverage products targeting the upper echelons of the income pyramid do reach those earning less than US\$2 per day, the products which transcend economic boundaries are typically the less healthy ones. It is not unusual for a low-income consumer to purchase a well-known global beverage or to treat his or her child to a small packet of biscuits if they have any spare income. These products are seen as aspirational, and by being able to purchase them or to be seen purchasing them, the consumer is communicating that they are different from the average low-income consumer and aspire to a better life.<sup>9,10</sup> The fact that there is a demand for desirable and aspirational food and beverage products could be leveraged to help drive demand for nutritious foods by communicating these facts to low-income consumers.

#### Low-income markets

However, to improve nutrition at the bottom of the economic pyramid, low-income consumers need to be seen as a viable and commercially sustainable target consumer group. Prahalad<sup>8</sup> in his oft-cited book, *The Fortune at the Bottom of the Pyramid*, presented the business case for investing in low-income consumers, arguing that they present a significant, untapped market and viable business opportunity, and that such business investments can help deliver people from poverty. Since Prahalad's influential book was published, numerous companies, large and small, have achieved market success at the bottom of the pyramid, but many more have failed nonetheless. There are numerous factors that have contributed to the lack of success in this market, but one that comes up time and time again is the fact that businesses have not sought a sufficient understanding of this unique consumer group. Many have merely extrapolated assumptions and understanding from higher-income consumers. Such assumptions rarely hold true, and it essential therefore that nutritious products designed for low-income markets should be appropriate to the target consumer.

#### Definition of consumer research

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 Consumer research is a form of market research, in which the needs, preferences, motivations, usage, and purchase behaviors of a target consumer in a market are determined, through direct observations, surveys and interviews and published research. Insights identified from consumer research help inform new product development/reformulation as well as informing marketing campaigns and communications.  
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It's important to understand the sources from which people seek nutrition advice in order to help drive uptake of nutritious foods.

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**“Nutritious products designed for low-income markets should be appropriate to the target consumer”**

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The SUN Business Network (SBN) is working with business at the global and national level to encourage and support businesses to increase the availability and affordability of nutritious products, particularly for low-income consumers, in a commercially sustainable way. Many of the 350-strong private-sector membership situated along the food value chain focus their endeavors on profitable high-income consumers and do not reach more vulnerable groups. SBN wants to help inform and de-risk business efforts to expand deeper into the income pyramid, to enable more affordable and desirable nutritious product offerings. It also wants to help improve consumers' nutrition knowledge and awareness, to improve health-seeking behaviors, and to increase the consumption of nutritious diets.

**Understanding the consumer and identifying insights**

The SBN recognizes the need to better understand the low-income consumer in order to drive the development of relevant nutritious products and associated communications. This is necessary not just to improve nutrition but to also ensure

greater chances of commercial success. To fully understand low-income consumers, it is imperative to understand everything one can about them, from their environment and behaviors, including purchase behaviors, to their influencers. Details are important, such as what low-income consumers buy, why they buy it, and how much they spend. It is essential also to understand their aspirations and preferences, and to identify the sources to which they turn for nutrition information. Likewise crucial is to comprehend consumers' level of understanding of nutrition, their attitudes towards food and nutrition and also their food beliefs, as well as to dig into the barriers to adopting more nutritious diets. Last but not least, it is useful to understand what foods are available in the market and what consumers think about them.

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**“Once a business fully understands a target consumer, it becomes a lot easier to design and deliver fit-for-purpose products”**

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Once a business fully understands a target consumer, particularly the underserved and vulnerable groups, it becomes a lot easier for them to design and deliver fit-for-purpose products, distribution mechanisms and communications that meet consumers' needs, fit their lifestyles and help improve nutrition.

It is for this reason that SBN sees consumer research and subsequently insight as a vital resource in helping drive demand for nutritious foods, improving nutrition outcomes and ensuring commercial success for the food industry. Insight gleaned from consumer research can be used to overcome barriers to the consumption of nutritious diets.

While businesses large and small appreciate the value of undertaking broad and detailed research into a target consumer group, few can justify undertaking such costly research. Understandably, most businesses focus their research budget on specific products or concepts, identifying insights that will provide a greater likelihood of return, rather than spending on broad but in-depth research. However, in our experience, undertaking broad research helps uncover those surprising insights which can ensure that a nutritious product really delivers and appeals to the target consumer, addressing both their needs and their demands.

Understanding consumer habits, beliefs, attitudes and knowledge surrounding nutrition is emerging as a key wish of SBN's business members, but one they cannot afford. As a result, SBN undertakes and collates research findings and insights to share with its business members at the national level. Without access to new insights, businesses are unable to innovate in order to address malnutrition at the bottom of the pyramid.

In Nigeria, for example, the national SBN, in collaboration with Ipsos Healthcare, has shared findings and insights from market research, undertaken for the Bill and Melinda Gates Foundation, on food consumption, knowledge and beliefs plus spending behaviors across Nigeria, providing private-sector members with access to information they would otherwise not have had. SBN Nigeria is working with businesses to help them understand how to use consumer research and insight, equipping them with tools to identify new business opportunities to improve nutritional status. It is hoped that businesses with access to data and the ability to use consumer insights will develop nutritious products targeted at low-income consumers, and will use their marketing and communications expertise to make nutritious products relevant, appealing and aspirational, helping drive demand for nutrition.

Another example of how SBN is using consumer insight to ultimately improve nutrition comes from Tanzania, where the national SBN has worked with Nielsen to understand consumers' nutrition knowledge of, and attitudes towards, food fortification. Consumer research findings indicated that almost 50% of adults surveyed had not heard of food fortification, despite the existence of a food fortification logo and an awareness-raising campaign. SBN Tanzania and its members are keen to work together using insights garnered from the research to drive consumer acceptance and demand for fortified foods – for example, through the development of new, more effective awareness campaigns

### About the SUN Business Network

The SUN Business Network is one of four global networks supporting the work of the Scaling Up Nutrition (SUN) Movement and SUN countries to scale up nutrition at the national level. The SBN is convened by the Global Alliance for Improved Nutrition (GAIN) and the UN World Food Programme (WFP) and further supported by an Advisory Group of senior business leaders.

The SBN aims to reduce malnutrition in all its forms by mobilizing business to invest and innovate in responsible and sustainable actions and operations. To do this, SBN provides a neutral platform to broker partnerships and collaborations between business and all actors involved in nutrition at national, regional and global level to support SUN Country plans. The main objectives of the SBN are to:

1. Mobilize business to contribute to reduce malnutrition in all forms;
2. Make nutrition more aspirational, accessible, affordable and available to the consumer; and
3. Build the case for greater business engagement on nutrition among all stakeholders.

The SBN is the only dedicated global platform for business and nutrition, and operates both globally and nationally, with a current presence in 14 countries across Africa, Asia and Latin America. The Network boasts more than 350 business members, most of who are national small-medium enterprises, committed to addressing malnutrition in all its forms.

For more information on the SUN Business Network visit: [www.sunbusinessnetwork.org](http://www.sunbusinessnetwork.org) or email [SBN@gainhealth.org](mailto:SBN@gainhealth.org).

designed to stimulate stronger sales of fortified food and to improve nutrition intakes at the same time.

### In conclusion

There is an urgent need to increase the availability, affordability and desirability of nutritious foods in order to drive their consumption and thus ultimately improve nutrition status of populations. SBN sees a benefit in undertaking exploratory research on food and nutrition, where “fuzzy” questions which would not otherwise be asked can be answered. By making consumer research findings and insights more readily available, SBN envisages that more businesses will responsibly leverage the data in their production of nutritious foods, particularly for low-income

consumers. It is also hoped that business will develop marketing and communications approaches which make nutrition more exciting, relevant and aspirational to the consumer, ensuring that nutrition is an important driver of food choice.

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**The SBN is happy to share existing consumer insights with its business members as well as any lessons learnt on how to effectively market nutritious foods, so if any readers have insight to share, please get in touch.**

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# The Mother-Child Food Relationship in the Study of Infant and Young Child Feeding Practices

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### Key messages

- > Biology and culture come together at the level of the diet.
- > This article reviews infant and young child feeding (IYCF) practices from a cultural perspective, studying dietary patterns in infants and children between the ages of 6 and 24 months.
- > Drawing on ethnographic research conducted in Mexico, sub-Saharan Africa and China, the authors demonstrate how viewing IYCF in cultural terms can expand our explanatory frameworks and improve nutrition intervention designs.
- > The “dyadic eating relationship” between mother and child is expressed in several ways, including the practice of maternal pre-mastication of food, the influence of maternal food preferences on the child, and the sharing of food between mother and child.
- > Studies of “infant and young child feeding culture” can generate valuable new insights and suggest avenues for translating nutritional science into actions in the households and communities where we work.

### The mother-child food relationship

Scholarship on infant and young child feeding (IYCF) has focused broadly on the following areas: assessments of IYCF (usually based on WHO IYCF indicators or nutrient intakes); the association of indicators or nutrient intakes with measures of nutritional status; the impact of agriculture on IYCF indicators or nutrient intakes; the social determinants of IYCF (e.g., maternal knowledge; income); and intervention studies aimed at improving IYCF practices. The latter have mainly been considered in the context of education and counseling activities and supplementation programs.

In this article, we bring a cultural perspective to bear on IYCF – specifically, discoveries around the centrality of the mother-infant dyad food relationship to the study of IYCF. In our field, the influence of the mother has been explored primarily in terms of her knowledge of appropriate practices and as a variable or a factor of relevance to IYCF, such as maternal education or maternal obesity.<sup>1</sup> For example, by studying the knowledge and attitudes of the mother, researchers can examine the association of these variables with the dietary intake or nutritional status of the child. While these studies indicate that the mother’s knowledge and attitudes are influential, we have yet to uncover the pathways that reveal precisely how her influence is exerted. In the following, we describe the nature of the mother-infant dyad food relationship, drawing from our work in Mexico, sub-Saharan Africa and China, with the aim of sharing how the cultural perspective can expand our explanatory frameworks and can improve intervention designs.

### A biocultural view of nutrition

Nutrition is a biocultural phenomenon. The foods we consume have biological impacts, and at the same time, what we eat and how we eat it (our food intake) is influenced by social, economic, political, and cultural processes.<sup>2</sup> This means that nutrition can be studied either from a perspective of biology and health



or from a social and cultural perspective. For many people, the term “nutrition science” is synonymous with the study of *nutrients in foods* – macronutrients (protein, calories, fats, carbohydrates) and micronutrients (vitamins and minerals, plus other compounds, such as lipids). When we study nutrition from a biological perspective, we quantify nutrient intakes, create nutrient indicators, assess nutrient bioavailability, and study the relationships these nutrients have with metabolism, health indicators, and functional outcomes. These research areas are pillars of nutrition science and they guide our policy, nutrition guidelines and program decisions. And indeed, we continue to discover the ways that nutrients impact our metabolism<sup>3</sup> and our health.<sup>4</sup>

The social and cultural perspective is the other part of nutritional science. Its importance is evident to professionals who have responsibility for designing and implementing public health programs, for translating scientific discoveries into actions, for doing community outreach work, or for motivating people to change their eating habits. We have made significant advances in our knowledge of how nutrients impact our health, but acquiring knowledge as to how social and cultural factors affect food intake, and the translation of this knowledge into actions to improve nutrition, remains a significant challenge.

Biology and culture intersect, in practical terms, at the domain of “diet” or, in layman’s terms, at the level of “what we eat.” Nutrition professionals define diets as the totality of our food intake over a specified period of time, such as 24 hours, seven days, or many months. Dietary patterns (also called dietary practices) reflect the foods we ingest on a recurring basis, with some foods consumed at every meal, every day, or less frequently. For example, many of us are familiar with the Mediterranean Diet, which involves the consumption of vegetables, olive oil, fruits and nuts at most meals, and less frequent consumption of meat. Dietary patterns influence our nutrient intakes and consequently our health. They also reflect the cultural features of the shared behavior, preferences, and food combinations of a group of people, which are in turn determined by what is available and financially accessible. Although diets can be studied through a biocultural lens, very few studies have been designed to explore both biology and culture and their interactions.

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**“Although diets can be studied through a biocultural lens, very few studies have been designed to explore both biology and culture and their interactions”**  
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### The diets of infants and young children in cultural context

There are many definitions of culture.<sup>5</sup> A common feature of these various definitions is the focus on the cumulative body of knowledge, experience, beliefs, values, attitudes and meanings that are held by a group of people. In the realm of food and nutrition, the emphasis is on food beliefs, practices and behaviors.<sup>2</sup> Culture studies primarily examine sociocultural factors (and their mechanisms) that affect food intake. On the other hand, a biocultural approach, which is captured in the cultural ecological model,<sup>6</sup> calls attention to the domains of determinants of diet.

In our ethnographic work, we have used the biocultural framework (Figure 1) to study dietary patterns in infants and children between the ages of 6 and 24 months. An important feature of these studies was the demonstration of explicit “culture rules” for foods, which are concerned with beliefs about what young children ought to consume. These rules include attention to the timing of the introduction of foods, food preparation, and food ideologies.<sup>7</sup> Social contextual factors also play a role in the choice of foods given to children. For example, in some cultural settings, the nutritional quality of the child’s meal can depend on who is present at meal times or the presence of other children in the home. In Mexico, when children younger than five years of age were in the home, meals tended to be of liquid consistency (rather than solid consistency, which is recommended practice).<sup>8</sup> A negative association between the quality of feeding practices and the presence of other young children has been documented in India by Malholtra.<sup>9</sup>

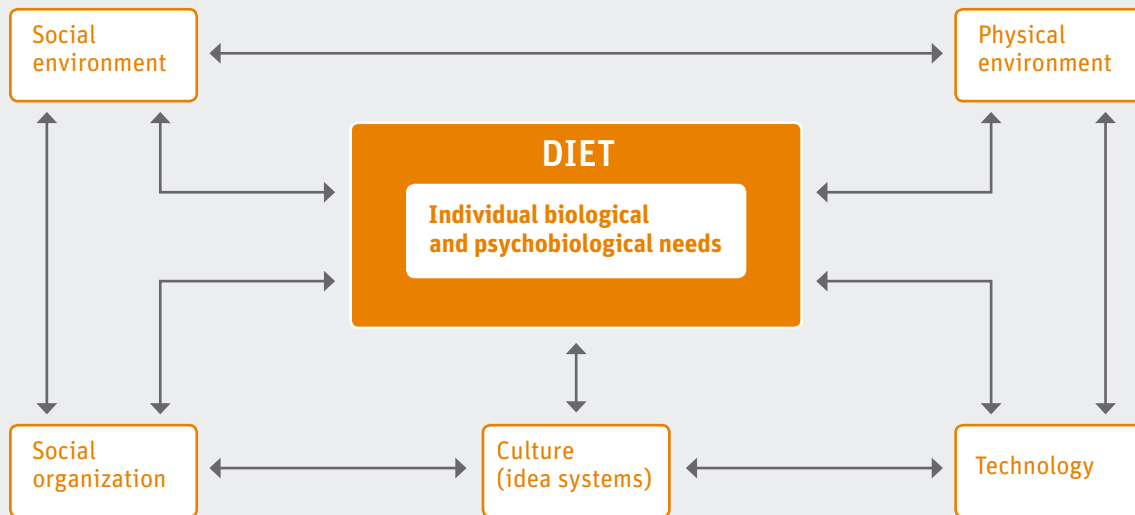
Multiple factors related to food production have profound effects on what people eat and on feeding patterns. These factors include women’s role in agriculture; the extent of reliance on locally grown food; the effects of seasonality; the choices and behaviors of food retailers; and the affordability of foods. In many cultures, women, particularly mothers, play a key role in decisions about purchasing and preparing food. In other situations, women have much less control over the purchasing of food. While cultural differences generate very different levels of maternal authority over what their children eat, the mother-child dyad is a universal central factor. Aside from their roles as decision-makers and managers of food preparation, we have found that the diets of caregivers and their young children overlap in unique ways. The “dyadic eating relationship” is expressed in several ways, including the practice of the premastication of food for IYC, the influence of maternal food preferences, and the sharing of food.

### Expressions of the dyadic eating relationship

#### Premastication

In the context of human nutrition, “pre-mastication” refers primarily to the practice of chewing, but not swallowing, foods that are then fed to infants and young children, particularly during



**FIGURE 1:** The biocultural framework

the period when their dentition is not yet fully developed and they cannot eat all household foods. Premastication arose in the course of our evolution, when the anatomical changes associated with upright posture and enlarged fetal head size led to delayed tooth eruption. Without premastication, our ancestors – who subsisted on a mixed animal-vegetable diet – would not have survived, because breast milk alone is not adequate to support infants until they have a full set of teeth. Prechewing their own food, by mothers, was the vehicle that made it possible for mothers to provide their babies with nutrition, and babies ate what their mothers ate.<sup>10,11</sup>

### “Without premastication, our ancestors would not have survived”

After the agricultural revolution, when many human populations shifted to the subsistence farming of grains and tubers, preparing paps and gruels for babies meant that mothers could keep their infants alive without premastication, but they could not keep them well nourished, as these preparations are deficient in both macronutrients and micronutrients. In recent times, new technological developments have made it possible to prepare infant and young child (IYC) foods that do not depend on having a full set of teeth. Premastication is no longer essential from a nutritional perspective, and in some societies (but not all), the practice has declined or even disappeared. However, the decline also meant that the immunological benefits of exposure to mother’s saliva were lost.<sup>12</sup>

### Preferences

As the primary managers of what children are fed, mothers around the globe are often very sensitive to children’s food likes and dislikes. Particularly during the early years of life, children quickly learn that how well they eat and how much they eat is of great concern to their mothers, and this rapidly enters into the dynamics of mother-child interactions.<sup>13</sup> Universally, mothers want to see their children eat the foods they have prepared for them, and want to avoid wasting food that their children refuse to eat. In our ethnographic study in Mexico, mothers agreed that the child’s preferences for a particular food will often drive the food choices they make. Mothers expressed the idea of honoring the child’s preferences, and they did not want to waste food. When asked how they knew if the child disliked a specific food, most mothers said that “a face of disgust,” “turning head away,” or “spitting the food back out” were indicators of child’s disliking of a food.<sup>8</sup>

In addition to avoiding food waste and encouraging consumption, it is possible that another expression of the mother-child dyad in complementary feeding is mothers’ projection of their own food preferences onto their children, and that they thus may have a tendency to offer foods that they themselves prefer. There may also be a biological explanation that links child food preferences to their mother’s diet. This linkage has its roots in what is sometimes referred to as “the flavor principle.”<sup>14</sup>

The “flavor principle” describes a cultural phenomenon – namely, that cuisines are characterized by specific seasoning combinations. Scientists have hypothesized that the flavor principle explains how cultural food preferences are transmitted,<sup>15</sup>

and have demonstrated that flavor compounds are present in amniotic fluid and breast milk.<sup>16</sup> For example, infants whose mothers consumed carrot juice during pregnancy demonstrated a preference for carrot-flavored cereal over plain cereal,<sup>17</sup> and similar preferences were experimentally identified for a number of other flavor compounds.<sup>16,18</sup> Fortunately, food preferences can be modified if the child is exposed to alternative foods frequently, or if new foods are combined with one of the preferred foods.<sup>19</sup>

## “Scientists have hypothesized that the flavor principle explains how cultural food preferences are transmitted”

### Sharing

The degree of overlap or *sharing of food* between IYC and their families varies across cultures and with the child’s age.<sup>20</sup> In some cultures, there is an almost complete overlap between the foods that are fed to IYC during the period of complementary feeding, while in other cultures, children receive only specially prepared foods and do not make the transition to the family diet until well into the second year of life. For example, in some parts of Latin America, the first foods are often liquids that are not a common part of the adult household diets,<sup>7</sup> and specially prepared broths remain significant in children’s diets.<sup>21</sup> On the other hand, the degree of overlap between family foods and IYC foods also depends on whose intake in the family you compare it to. The overlap is considerably greater when one compares child consumption to what mothers are eating.<sup>8</sup>

An important factor in determining the degree of food overlap in the mother-child dyad originates with the practice of plate-sharing. In our study in Mexico, we learned in home observations that if the mother was alone with her child, she would eat from the child’s plate, but when the father was home, she would share her plate with her husband and not with the child. In this cultural setting, the ingredients for the child’s meals were selected from foods available in the home; however, the content and preparation of the child’s meal were often different. These child-appropriate meals had attributes that were different from the adult meals, including not being as spicy, having a liquid consistency, or being soft to chew. Although the sharing of child-appropriate foods between mother and child was common, mothers also shared the “adult foods” with their child through *probaditas* (small bits of food from her plate). The rationale for these *probaditas* was that this is how children “learn” to eat foods.<sup>8</sup>

## “Studies of ‘infant and young child feeding culture’ can generate valuable new insights”

### Closing thoughts

Studies of “infant and young child feeding culture” can generate new insights and suggest options and avenues for translating nutritional sciences into actions in the households and communities where we work. We have called attention to the value of examining the mother-child dyad (or child-caregiver dyad) as an analytical focus, and to how this focus offers opportunities to expand the nature and scope of our studies for IYC nutrition.

In summary, by drawing on models and theories, such as biocultural models or the cultural ecological theory, which have been developed by social scientists, the cultural perspective can surely enrich our current scholarship on IYCF.

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# Wanting More

## Hunger and anger in the works of Charles Dickens

**Jonathan Steffen**

Jonathan Steffen Limited, Cambridge, UK

“Everything that happens [...] shows beyond mistake that you can’t shut out the world; that you are in it, to be of it; that you get yourself into a false position the moment you try to sever yourself from it; that you must mingle with it, and make the best of it, and make the best of yourself into the bargain.”<sup>1</sup>

Charles Dickens, 1812–70

1839 and was published in book form in 1838. An orphan whose mother died when he was young and about whose father nothing is known, Oliver is brought up by a surrogate mother until the age of nine, and then put in a workhouse to earn his keep. The child inmates are kept in a state of near starvation:

“The room in which the boys were fed, was a large stone hall, with a copper at one end: out of which the master, dressed in an apron for the purpose, and assisted by one or two women, ladled the gruel at mealtimes. Of this festive composition each boy had one porringer,<sup>3</sup> and no more – except on occasions of great public rejoicing, when he had two ounces and a quarter of bread besides.

“The bowls never wanted washing. The boys polished them with their spoons till they shone again; and when they had performed this operation (which never took very long, the spoons being nearly as large as the bowls), they would sit staring at the copper, with such eager eyes, as if they could have devoured the very bricks of which it was composed; employing themselves, meanwhile, in sucking their fingers most assiduously, with the view of catching up any stray splashes of gruel that might have been cast thereon. Boys have generally excellent appetites. Oliver Twist and his companions suffered the tortures of slow starvation for three months: at last they got so voracious and wild with hunger, that one boy, who was tall for his age, and hadn't been used to that sort of thing (for his father had kept a small cook-shop), hinted darkly to his companions, that unless he had another basin of gruel per diem, he was afraid he might some night happen to eat the boy who slept next him, who happened to be a weakly youth of tender age. He had a wild, hungry eye; and they implicitly believed him. A council was held; lots were cast who should walk up to the master after supper that evening, and ask for more; and it fell to Oliver Twist. The evening arrived; the boys took their places. The master, in his cook's uniform, stationed himself at the copper; his pauper assistants ranged themselves behind him; the gruel was served out; and a long grace was said over the short commons. The gruel disappeared; the boys whispered to each other, and winked at Oliver; while his next neighbours nudged him. Child as he was,



The young Charles Dickens at his desk, shortly after the success of *Oliver Twist*. Portrait by Daniel Maclise, 1839.

Charles Dickens depicted what is arguably the most famous scene in English literature with six syllables: “Please, sir, I want some more.”<sup>2</sup>

The words are spoken by Oliver Twist, the hero of Dickens' second novel, which appeared in serial form between 1837 and



Oliver asks for more in George Cruikshank's iconic illustration of Dickens' single most famous scene.

he was desperate with hunger, and reckless with misery. He rose from the table; and advancing to the master, basin and spoon in hand, said: somewhat alarmed at his own temerity: "Please, sir, I want some more."

### A hunger still unassuaged

This account is full of the almost hallucinatory detail which characterizes all of Dickens' work. On "occasions of great public rejoicing," the boys receive an extra two *and a quarter* ounces of bread. The specification of the extra quarter-ounce of bread (c. 7 g) ironically emphasizes the parsimony of the workhouse regime and the contempt in which the boys are held by the authorities that run it. The bowls never need washing because they are polished clean by the boys' spoons as they scrape up every last bit of food available to them. The spoons they use are almost as large as the bowls themselves, giving a vivid impression of how small the bowls must be. On finishing their tiny portion of gruel, the boys stare compulsively at the pot in which it was cooked, sucking their fingers in search of any splashes of the mixture that may have landed on them while it was being served out. And one boy, "tall for his age" (and therefore obviously not stunted – the inference being that many of his companions are), whose father used to operate a small food retail business and who is therefore used to better fare, threatens to resort to cannibalism itself to assuage his hunger – the most desperate of responses imaginable. Piled one upon another with extravagant assiduousness, these details are designed to shock the reader – and they still do, even after 180 years. But more shocking still is the combination of

humility and directness in Oliver's plea: "Please, sir, I want some more." All the boy is asking for is a little more gruel. That is why we remember his words, and why they are so often quoted verbatim. Of course, Oliver does not get his extra helping. He is actually turned out of the workhouse for his impudence. But his six brave words still hang in the air today, emblematic of a hunger that is still unassuaged and an indifference that is still unchanged in many parts of the world – developing and developed alike.

.....  
 "He realized to the full the awful narrowness and hopelessness of the life of the very poor"  
 .....

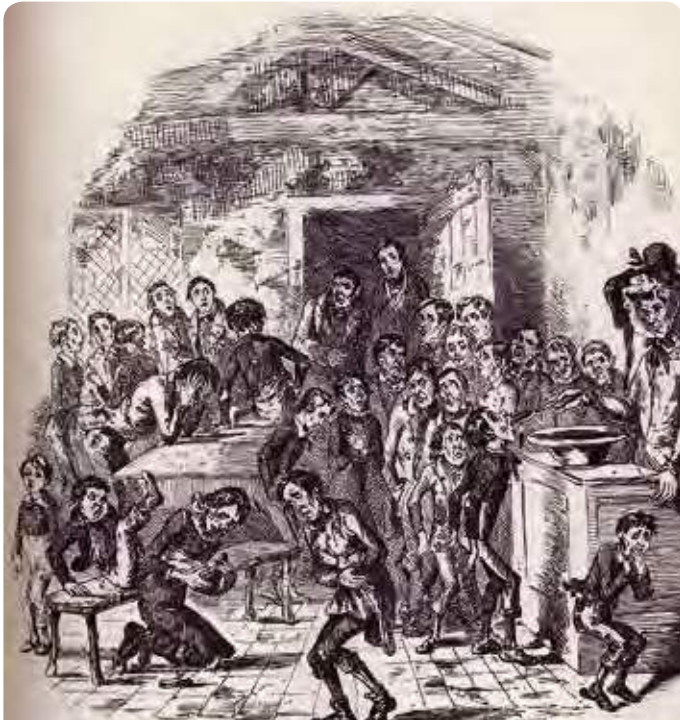
### The boot blacking factory

Dickens may not have experienced actual starvation as a child, but he famously suffered poverty and the humiliation that so often accompanies it. His father, John Dickens (1785–1851), a clerk in the Navy Pay Office, created a pleasant and comfortable life for his family, but he lived beyond his means and fell into debt. In 1824, when Charles was 12 years old, John was forced by his creditors into the Marshalsea debtors' prison in Southwark, London. Separated from his family – who joined John Dickens in the Marshalsea – the young Charles boarded with an impoverished female relative. To pay his lodging and help support his family, he left school and took a job at Warren's Blacking Warehouse, in London's Charing Cross area. He earned six shillings a week (equivalent to USD 32.07 in today's values<sup>4</sup>) pasting labels on pots of boot blacking. Harold Dent eloquently explained the defining nature of this trauma in his critical biography *The Life and Characters of Charles Dickens*:

'Thus it came to pass that when Mr. John Dickens' financial embarrassments became acute again, and finally overwhelmed him altogether, Charles knew not only the actual taste of poverty, but, what was far worse to one of his sensitive understanding, felt all the bitterness of its degradation, and realized to the full the awful narrowness and hopelessness of the life of the very poor. Had he known nothing but poverty all his life, he would have grown up more hardened to it. There can be little doubt that it was the fearful mental shock caused by a descent from comfortable prosperity into privation and neglect, rather than actual physical suffering, which hurt him, and which was instrumental in turning him into "the friend of the poor."' <sup>5</sup>

### Food spikes then and now

The financial vicissitudes that undid his father affected many of Dickens's contemporaries. Imprisonment for debt was common in Great Britain throughout the 19<sup>th</sup> century, and the society into



Another iconic image of systematic child abuse: At the Yorkshire School Dotheboys Hall, a boarding institution, the pupils are forced to eat brimstone and treacle [sulfur and molasses] – a laxative believed in Victorian times to cleanse the blood. Served directly before a small breakfast of porridge and bread, it also acts as appetite suppressant. Illustration by George Cruikshank from Charles Dickens's *Nicholas Nickleby* (1838–39).

which Dickens was born was highly unstable. As Laton Blacklands wrote in his foreword to Harold Dent's biography:

'During Dickens' boyhood the land seethed with economic unrest and discontent, brought about by diminishing wages, the high price of food, and unemployment. Riots broke out, and in order to prevent mass agitation large meetings were forbidden without official sanction. A heavy stamp duty rendered propaganda by print an expensive matter. Children of six worked in the mills, though merciful legislation allowed apprentices to labour for a mere twelve hours a day. By 1833 social progress had made such rapid strides that the hours were limited to nine a day or forty-eight per week for juveniles under eleven, and twelve a day or sixty-nine per week for those under eighteen, and inspectors were appointed to see that these regulations were observed.'<sup>6</sup>

One notes the Dickensian irony in the observation that "social progress" permitted the introduction of a 48-hour working week for children under the age of nine. One also notes that some of the conditions referred to by Blacklands exist in parts of the world today. As the 2015 FAO Statistical Pocketbook on World Food and Agriculture puts it:

'Over the last ten years, food and agricultural markets have entered an unexpectedly turbulent phase, character-

ized by large supply shortfalls, price swings. Political and economic uncertainties, coupled with extreme weather conditions, can have direct and adverse impacts on food security. The poorer the household, the stronger the impact of external shocks, as poor households spend a proportionally higher share of their incomes on food.'<sup>7</sup>

The FAO's wording is characteristically considered. Many commentators would trace a stronger link between the food spikes that helped trigger the Arab Spring and the violence and turmoil that are now gripping parts of the Middle East.

### Hunger and revolution

Dickens published the book version of *Oliver Twist* in 1838, the same year that saw the abolition of slavery in the British Empire and the launch of the reformist Chartist movement, "the most significant radical pressure group of the 19<sup>th</sup> century."<sup>8</sup> Queen Victoria had been on the throne for just a year and the French Revolution of 1789–99 could still be remembered by some of the author's contemporaries. Like many Britons of the day, Dickens had a horror of the mob. Yet he felt a deep compassion for the individuals within it. This paradoxical position is well illustrated by a passage in his 1859 novel *A Tale of Two Cities*, which treats of the French Revolution. A large cask of red wine drops off a cart somewhere in pre-revolutionary Paris, and its contents spill across the cobbled street. "All the people within reach" suspend their business to drink the precious wine, scooping it up from the puddles in the stones in an orgy of opportunism, a type of feeding frenzy that prefigures the bloody excesses that are to come during the Revolution. The narrator describes the crowd's desperation to consume every last drop of the wine, observing with that hallucinatory Dickensian eye that after the wine was gone, "the places where it had been most abundant were raked into a gridiron-pattern by fingers." Then the narrator pauses to reflect on the people who have been overtaken by such uncontrollable greed:

'The mill which had worked them down, was the mill that grinds young people old; the children had ancient faces and grave voices; and upon them, and upon the grown faces, and ploughed into every furrow of age and coming up afresh, was the sigh, Hunger. It was prevalent everywhere. Hunger was pushed out of the tall houses, in the wretched clothing that hung upon poles and lines; Hunger was patched into them with straw and rag and wood and paper; Hunger was repeated in every fragment of the small modicum of firewood that the man sawed off; Hunger stared down from the smokeless chimneys, and started up from the filthy street that had no offal, among its refuse, of anything to eat. Hunger was the inscription on the baker's shelves, written in every small loaf of his scanty stock of bad bread; at the sausage-shop, in every dead-dog preparation that was offered for sale. Hun-



ger rattled its dry bones among the roasting chestnuts in the turned cylinder; Hunger was shred into atomics in every farthing porringer of husky chips of potato, fried with some reluctant drops of oil.’<sup>9</sup>

.....

“The children had ancient faces and grave voices; and upon them, and upon the grown faces, and ploughed into every furrow of age and coming up afresh, was the sigh, Hunger”

.....

“Very like the dog”

The same mixture of compassion and horror is experienced by the seven-year-old Pip, the orphan hero of Dickens’s 1861 novel *Great Expectations*. On Christmas Eve around 1812, Pip encounters an escaped convict in the village churchyard where he has gone to visit the graves of his parents and siblings. The convict, named Magwitch, who has broken out of a prison ship moored in the Thames Estuary off the North Kent Marches, terrifies the young Pip into bringing him a file to cut off his shackles and some food to eat:

‘I was soon at the Battery after that, and there was the right man, – hugging himself and limping to and fro, as if he had never all night left off hugging and limping, – waiting for me. He was awfully cold, to be sure. I half expected to see him drop down before my face and die of deadly cold. His eyes looked so awfully hungry too, that when I handed him the file and he laid it down on the grass, it occurred to me he would have tried to eat it, if he had not seen my bundle. He did not turn me upside down this time to get at what I had, but left me right side upwards while I opened the bundle and emptied my pockets.

“What’s in the bottle, boy?” said he.

“Brandy,” said I.

He was already handing mincemeat down his throat in the most curious manner, – more like a man who was putting it away somewhere in a violent hurry, than a man who was eating it, – but he left off to take some of the liquor. He shivered all the while so violently, that it was quite as much as he could do to keep the neck of the bottle between his teeth, without biting it off.

“I think you have got the ague,”<sup>11</sup> said I.

“I’m much of your opinion, boy,” said he.

“It’s bad about here,” I told him. “You’ve been lying out on the meshes,<sup>12</sup> and they’re dreadful aguish. Rheumatic too.”

“I’ll eat my breakfast afore they’re the death of me,” said he. “I’d do that, if I was going to be strung up to that there

gallows as there is over there, directly afterwards. I’ll beat the shivers so far, I’ll bet you.”

He was gobbling mincemeat, meatbone, bread, cheese, and pork pie, all at once: staring distrustfully while he did so at the mist all round us, and often stopping – even stopping his jaws – to listen. Some real or fancied sound, some clink upon the river or breathing of beast upon the marsh, now gave him a start, and he said, suddenly, –

“You’re not a deceiving imp? You brought no one with you?”

“No, sir! No!”

“Nor giv’ no one the office to follow you?”

“No!”

“Well,” said he, “I believe you. You’d be but a fierce young hound indeed, if at your time of life you could help to hunt a wretched warmint hunted as near death and dunghill as this poor wretched warmint<sup>13</sup> is!”

Something clicked in his throat as if he had works in him like a clock, and was going to strike. And he smeared his ragged rough sleeve over his eyes.

Pitying his desolation, and watching him as he gradually settled down upon the pie, I made bold to say, “I am glad you enjoy it.”

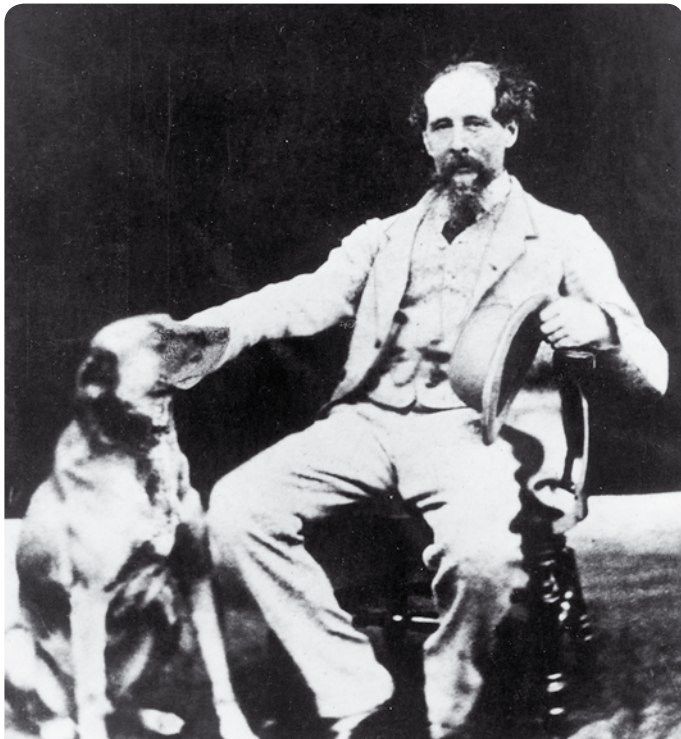
“Did you speak?”

“I said I was glad you enjoyed it.”

“Thankee, my boy. I do.”



A left-over fragment of Victorian London. Dickens was both fascinated and horrified by the power of capital cities, and was famous for restlessly pacing the streets of London to help clear his mind as well as to search for new inspiration for his work. “If I could not walk far and fast,” he once wrote, “I think I should just explode and perish.”<sup>10</sup>



A photographic portrait of the mature Charles Dickens.

I had often watched a large dog of ours eating his food; and I now noticed a decided similarity between the dog's way of eating, and the man's. The man took strong sharp sudden bites, just like the dog. He swallowed, or rather snapped up, every mouthful, too soon and too fast; and he looked sideways here and there while he ate, as if he thought there was danger in every direction of somebody's coming to take the pie away. He was altogether too unsettled in his mind over it, to appreciate it comfortably I thought, or to have anybody to dine with him, without making a chop with his jaws at the visitor. In all of which particulars he was very like the dog.<sup>14</sup>

### Journalist and activist

Dickens himself, although a sensitive and impressionable boy who was so scarred by his experience of the boot blacking factory that he did not tell his wife about it until long after they were married, was himself to turn into a “fierce young hound.” Starting as a solicitor's assistant at the age of 15, he progressed to become first a freelance reporter of law cases, then a parliamentary reporter, then a short story writer, and then an overnight sensation as the author of *The Pickwick Papers* (1837), his first novel, and *Oliver Twist*. He remained a journalist all his life and became the joint owner of a weekly journal, *Household Words*, in 1850, and then of its successor, the monthly periodical *All The Year Round*, in 1859. Dickens used both his creative fiction and his journalism to campaign against institutional oppression, attacking abusive “Yorkshire schools” in *Nicholas Nickleby* (1839),

slavery in *American Notes* (1842) and the British legal system itself in *Bleak House* (1853). In today's parlance, he would be called an investigative reporter and activist who campaigned on topics as diverse as homelessness, workhouses for the poor, schools and schooling, conditions in the armed forces and for veterans; and prisons and punishment.<sup>15</sup> He was an advocate with every breath of his being.

Amazingly, Dickens is still associated in the collective consciousness not just with deprivation and hunger but also with generosity and plenty, as is most eloquently expressed by his 1843 *A Christmas Carol*, a fable of kindness overcoming parsimony which helped to essentially define the modern Christmas. So much is he associated with good fare, in fact, that his great-grandson Cedric Dickens (1916–2006) published a cookery book in 1984 entitled *Dining With Dickens*<sup>16</sup> – described on its title page as “a ramble through Dickensian foods” and being replete with Victorian recipes and observations by Cedric Dickens on his great-grandfather's characters and their relationship with food. According to Cedric, “Dickens enjoyed simple food but ate sparingly. He loved parties, not so much for the food, but more for the happiness parties engendered.”<sup>17</sup>

### “Generously angry”

Dickens was not a revolutionary. As George Orwell observed in his magisterial essay *Charles Dickens* of 1940, “Dickens's criticism of society is almost exclusively moral. Hence the utter lack of any constructive suggestion anywhere in his work. He attacks the law, parliamentary government, the educational system and so forth, without ever clearly suggesting what he would put in their places. Of course it is not necessarily the business of a novelist, or a satirist, to make constructive suggestions, but the point is that Dickens's attitude is at bottom not even destructive. There is no clear sign that he wants the existing order to be overthrown, or that he believes it would make very much difference if it were overthrown. For in reality his target is not so much society as ‘is human nature.’”<sup>18</sup> Thus Orwell – the left-wing author of *Animal Farm* and *1984*, who was very interested in how societies might be reshaped – saw Dickens in his mind's eye as “... a man of about 40, with a small beard and a high colour. He is laughing, with a touch of anger in his laughter, but no triumph, no malignity. It is the face of a man who is always fighting against something, but who fights in the open and is not frightened, the face of a man who is *generously angry*.”<sup>19</sup>

That deep generosity of spirit is echoed in Harold Dent's assessment of Dickens's achievement: “It was his business to tell of [the people's] joys and their sorrows, to picture their daily life in all its drabness and its heroism, to laugh at their oddities and chide gently their failings, to raise outcry against the wrongs which oppressed them, to hurl mighty bolts of ridicule and indignation at the foul abuses and injustices and cruelties that rode

### A London Particular (Pea Soup)

Few now will remember what a real thick London Pea Souper<sup>21</sup> was like, when you couldn't see your hand in front of your face! That "pea souper" became known as a "London Particular" after Charles Dickens wrote *Bleak House* in the mid-1800s. "This is about a London particular now, ain't it, miss?" Mr Guppy seemed quite delighted with the dense fog on Miss Summerson's account. It is very unfair to the soup, which is the opposite to acrid and clammy. Try this recipe:

**4 oz [c. 110 g] bacon**

**3 quarts [c. 3 l] green peas**

**2 quarts [c. 2 l] good broth**

**pepper, salt and a little sugar to season bread**

**4 oz [c. 110 g] butter**

**a little milk**

**1 pint [c. 0.5 l] young peas**

Put the butter and the bacon in a saucepan over low heat with the three quarts of peas to sweat them, adding a little milk to prevent the peas getting dry. Add the broth or stock and let boil for 10 mins. Strain and mash well with the broth. If it be too thick add a little more broth. Season to taste. Blend a little flour with a little milk and stir into soup, and boil it up. Cook the young peas, very green and add the soup just before serving.

Don't fry the bread: dry it before the fire and then dice.

**Source:** Cedric Dickens, *Dining With Dickens*, Elvendon Press: Goring-on-Thames, England, 1984. P.133.

roughshod over them and trampled them down into the mire and the filth. This was the destiny he took upon himself ... From the moment of the success of 'Pickwick', whether he knew it or not, Dickens ceased to be his own master and became the servant of his people."<sup>20</sup>

Writing in the 1930s, Harold Dent placed Dickens very much within the context of the British nation. Today, hunger and malnutrition are rightly seen as global issues that have no borders and require multinational solutions. One wonders if the injustices of today's world might one day give rise to a global Dickens of the 21<sup>st</sup> century.

**“Dickens ceased to be his own master and became the servant of his people”**

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# Gretel Peltó:

## A Life in Nutrition

“We are the tribe of nutritionists”

Gretel Peltó’s long and distinguished career in nutrition has been powerfully informed by her love of the arts and her early career in anthropology. She discusses the development of her unique perspective on nutrition – and shares a favorite recipe with our readers.

**Sight and Life (SAL):** *Gretel, your first degree was in Dance and Literature, which is scarcely what one would expect of a nutritionist. What attracted you to these subjects, and why did you move on from them to sociology, anthropology and ultimately nutrition?*

**Gretel Peltó (GP):** The attraction lay in my belief in the very close interrelation of the arts and the sciences. Many people construct a false dichotomy between them, but I think that no such dichotomy exists – at least, not at the level that matters for my work. The arts and the sciences are similar in many ways, including the attributes that are required for successful practice. They’re identical in terms of requiring knowledge, technical skills, precision, imagination and persistence. These are fundamental attributes that are needed as much by artists as by scientists. So, my focus may have changed over the years, but this does not represent any shift in my values or in the way I manage my life. The transition was intellectually painless, in fact. In emotional terms, it was traumatic, because when I made the shift from art to science, I had to accept that I was abandoning the lodestar I had followed for so long. But the transition was brief; I got over it quickly.

**SAL:** *How did it happen?*

**GP:** I went to Bennington College in Vermont because it had a very good Dance curriculum. They also had a strong English Literature department, which included the highly influential analytical critics Stanley Edgar Hyman and Kenneth Burke. In many

ways, they were bringing newer, broader directions to literary criticism, and their thinking opened up exciting new perspectives for me. Also important was the fact that I am the daughter of an artist and a scientist. My mother was an artist photographer, and my father was an applied sociologist – one of the co-founders, in fact, of a field that in those days went by the name Social Work Research. He ran a research unit in Saint Paul, Minnesota, that focused on improving social work programs. Doesn’t that sound like my whole life ...? I was unbelievably fortunate to be born to these two people, who also had very strongly developed social values and a powerful commitment to equity and fairness. I grew up with a deep drive to make a difference – not for myself, but for society at large. To this day, incidentally, my family continues to have more artists in its ranks than scientists.

**SAL:** *Do your early studies of Dance and Literature still influence your thinking?*

**GP:** Not in a literal way, but rather at a much deeper level in the sense of allowing me to be mindful of the creative process in my work. In science, the emphasis on being logical and precise is so great that we sometimes need to give ourselves the space to think imaginatively as well – which is something the great scientists have always maintained, of course!

**SAL:** *The word “sociology” rarely appears in the discourse of nutrition, the word “anthropology”, even less frequently. In what ways have your studies in the fields of sociology and anthropology influenced your thinking as a nutritionist – and why are you such a rare animal in this regard?*

**GP:** To answer that question, I must first explain that anthropology – unlike sociology – has always been interested in nutrition, in what people eat and how they produce and consume it. From the beginning of the twentieth century, anthropology had a sub-

A close-up portrait of an elderly woman with short, wavy white hair. She is wearing a dark red, ribbed sweater and gold hoop earrings. She has her hands clasped under her chin and is looking directly at the camera with a slight smile. The background is a neutral, textured grey.

“I grew up with a deep drive to make a difference – not for myself, but for society at large”

Gretel Pelto





Invited to join a powwow, Cass Lake, Minnesota

stantial literature on food and nutrition – and let’s not forget that the great cultural anthropologist Margaret Mead headed up the US National Research Council’s Committee on Food Habits during the Second World War, which was one of the first critical attempts to bring nutrition and anthropology together in the arena of social policy. A lot of anthropology is based on a biocultural perspective, and in the 1960s and 1970s, researchers became interested in what was known as cultural ecology, which ties foods systems and human health to the ways in which societies operate. So it’s no surprise to me that anthropology has always been so concerned with nutrition.

My own interest in nutrition arose at an early stage in my graduate training in anthropology. My first fieldwork was on an Ojibway reservation in northern Minnesota. Community members were kind and generous in helping me to understand their community. They shared meals with me; they even invited me to join an important powwow as a participant, and to help in the wild rice harvest. This is the first time that I saw, first hand, the effects of food insecurity on nutrition, and it was another turning-point because I decided to devote my work to the interface of nutrition and anthropology.

“I value especially the Kellogg Award, because it says that my work as a nutritionist is valued by the wider world”

What is stunningly surprising, to me, is that nutrition has been so little concerned with anthropology. It’s still a struggle to get the critical importance of anthropology recognized by the wider nutrition community. I’m a very strong advocate of ethnographic methods, which are sometimes – falsely – conflated with other approaches to qualitative research. I still sometimes get introduced as “the anthropologist,” although I see myself first and foremost as a nutritionist – that’s my professional identity. Of the awards I have been fortunate to receive, the 2015 American Society for Nutrition Kellogg Prize in International Nutrition is the one I treasure the most. Being appointed a Fellow of the American Society for Nutrition in 2005 was also very important to me, as was the receipt of the Bronislaw Malinowski Award given me by the Society for Applied Anthropology in 2007. But the Kellogg Award is the one that really says that my core work as a nutritionist is valued by the wider world.

**SAL:** *Much of your work has focused on maternal and child nutrition. Why has this topic played such a prominent role in your research?*

**GP:** Good maternal nutrition, and good nutrition during the first 1,000 days of a child’s life, set the stage for everything that happens after that. Poor nutrition of women, especially during pregnancy, and malnutrition during infancy and early childhood have major effects throughout one’s lifetime. I think we must focus as much of our energy as possible on this critical window of opportunity. My belief in equity and social justice, which I’ve held since childhood, makes me feel that everyone in the world



Celebrating my birthday in Changsha





Receiving an honorary doctorate from the University of Helsinki

should have an equal chance of good nutrition, especially during their first 1,000 days. If we want everyone's life to have a positive trajectory, we absolutely have to address this. Of course, in focusing on the first 1,000 days, I'm not saying that women should be viewed primarily as child-bearing vessels. That's not my view at all. I've always been a feminist, and the inequitable power differential between men and women still makes me angry. I myself was born into a cultural context in which women have been given much more power and influence than in the past, but on a global scale, the power differential is still very much in women's disfavor.

**SAL:** *The Lancet 2008 series on maternal and child nutrition was a landmark publication that gave rise to the Scaling Up Nutrition (SUN) Movement and the First 1,000 Days Movement. How would you assess the success of these initiatives to date, and what more needs to be done to improve maternal and child nutrition globally?*

**GP:** I'm astounded by the speed with which these initiatives have gained momentum. I'm thrilled about these developments. Significant social developments usually take time. Of course, there are circumstances in which these are accelerated, but generally speaking, it takes a long time to bring about major transformations in society. The changes we are seeing on a global scale are proceeding at a terrific rate in relative terms, but it's much too early to make any judgment as to their success. That's not to say that we shouldn't be reflecting on what is happening: we need the views of people both inside and outside this move-

ment. But it's much too early to make a balanced assessment or to complain that progress is too slow. Let's wait and see.

**SAL:** *You have worked extensively in academia, with professorial positions at the University of Connecticut and Cornell University, and also in the international agency environment, heading behavioral research in the Division of Child Health at the World Health Organization from 1992 to 1999. How did this career path come about?*

**GP:** I'm one of a relatively small number of people who have been fortunate enough to have the opportunity to move from academia into action and back into academia. My move to WHO in Geneva was initially intended to be temporary. I was brought in to apply my social science skills to address some difficult issues in improving health care delivery for infectious disease in children. I obtained a two-year leave of absence from the University of Connecticut, and I certainly intended to go back to my job there. At the end of the second year, however, I realized that I hadn't accomplished all I had wanted to, and so I asked my university for an extension for another two years. Extending beyond that second term was not possible from the university's perspective, but when the time came, I already knew that I wanted to stay in the world of research for action.

Then there were also important changes in my personal life. My marriage broke up, and eventually I remarried. My second husband is Jean-Pierre Habicht – who happens to be Swiss and even from Geneva itself, although he was in the Division of Nutrition at Cornell University at the time. He was willing to return



Reviewing focused ethnographic study data with a research team in China

to his hometown, but Cornell was reluctant to see him go. They offered me a position in nutrition at a time when I felt I wanted to apply what I had learned about implementation research to training the next generation. I left WHO and moved back into an academic environment.

**SAL:** *What are the respective challenges and opportunities of working in academia and working in the action environment for a nutritionist, in your view? And what can the two worlds learn from one another?*

**GP:** That's difficult to answer. What I loved about working at WHO was that it gave me the feeling that I was a worker in the arena of social justice, month by month and day by day. I was working in the field of child health, particularly the management of diarrhea and acute respiratory infections, and I spent 30 to 40 percent of my time travelling. I worked very closely with pediatricians around the world and I found them extremely inspiring, but I must confess that I struggled with the bureaucratic environment of WHO itself. Universities have their own bureaucracies, of course, but if you can steer clear of them, you can work with greater freedom in that context. On balance, I much prefer working in academia, but I see myself very much as an actively engaged academic, working at the interface between research and action. I'm committed to improving the quality of research in programs, and so at this later stage of my career it was a logical choice to return to academia.

.....  
**“I see myself as working  
 at the interface between research  
 and action”**  
 .....

**SAL:** *In issue 2/2014 of this magazine, you and your husband Jean-Pierre made the case for a society dedicated to implementation science. The Society for Implementation Science in Nutrition (SISN) is now a reality. What has SISN achieved so far, what have you learned from the experience, and what are your hopes for its future?*

**GP:** SISN is the creation of a number of highly dedicated individuals – not least Klaus Kraemer of *Sight and Life*, who is a true visionary in this field. The concept of implementation science is not new, and there are scientists in other disciplines who have been working in this field for quite some time now. The nutrition community, however, has been late to see the value of this approach and fully embrace it. We're working very hard to catch up – trying to learn as much as we can from other disciplines, including health services research, that are already active in this area. At the same time, we need to create approaches that meet the specific challenges we face in nutrition. We are established now; we've made a lot of progress in a short time, and we are starting to form some promising

**Ari's Sephardic Lamb Tajine**

April 2009

**Lamb, cut into small chunks****Onion, chopped****Powdered ginger****Cinnamon****Saffron****Salt****Pepper****Mixed olives****Raisins****Honey****Lemon**

Brown the lamb well, in batches, and remove from pan. Brown the chopped onion. Add ginger and cinnamon. Add back the lamb, the saffron dissolved in water, and salt and pepper to taste. Then add water, about two-thirds up the sides of the lamb. Taste and add more cinnamon and ginger as needed, as it cooks.

Cover and cook on low simmer, for about one and a half hours (depending on cut of lamb).

Next add generous amount of mixed, chopped olives, raisins, honey, lemon juice and lemon zest.

Bake uncovered in hot oven, about 30 minutes.

Top with combination of toasted almond slivers and toasted sesame seeds (toasted separately).

Serve with vegetable dishes, such as carrots with caraway, braised celery, and potatoes.

alliances with colleagues in other disciplines and in sectors of action, such as the SUN Movement.

**SAL:** *It is not always the case that academics are married to someone working in the same field as themselves. In what ways has your personal relationship with your husband Jean-Pierre Habicht influenced your own thinking as a scientist?*

**GP:** What's particularly interesting in our case is that we work in the same area but we bring different disciplines to bear on

the subject. That's the secret of our joint success. He brings an epidemiological perspective and I bring an anthropological perspective, and we look at things from very different perspectives but in ways that are ultimately complementary. We've been married for 20 years now, and we've influenced one another considerably over the course of that time, and in ways that we'd like to think are productive.

**SAL:** *Are there other thinkers, scientists or artists who have influenced you?*

**GP:** There are two ways I'd like to answer that question. First I must speak of Margaret Mead, to whom I referred earlier. I didn't study with Margaret Mead, but she was one of the earliest pioneers of bringing anthropology and nutrition together, and was hugely influential on the decisions that I've taken in my career. She was an extraordinary personality, and a very important role model for me. I wasn't close to her, but I knew her through her role on the editorial board of the journal that my first husband and I set up, *Reviews in Anthropology*. Sadly, she died relatively young, of pancreatic cancer. When I heard that she was unwell, I took the opportunity of a long flight to write a letter to her telling her what a beacon she had been for me in my life. My handwriting isn't very legible, I'm afraid, and on completing the letter in longhand, I planned to type it up and send it to her. I didn't manage to do that before she died, and the fact that I didn't has been a sadness I will carry with me for the rest of my life. But she was a vital inspiration to me.

The other answer to your question – and here I sound like most of my fellow-nutritionists speaking at their own award ceremonies – is that my most important influences have been my parents, my teachers, my colleagues and my students. You could ask your question of many nutritionists and receive exactly the same response.

**“Margaret Mead was a beacon for me”**

**SAL:** *That's a very interesting observation. Going back to your roots in anthropology, do you think that there is such a thing as a tribe of nutritionists?*

**GP:** Exactly! That's exactly it. We are a tribe, and we behave like one. We have elders and families, and we pool our collective experience in pursuit of common goals.

**SAL:** *You are known to have a great love of cooking, and to possess an extensive collection of cookery books. The subject of cooking is mentioned relatively infrequently by nutritionists, however. What does cooking mean to you personally, and do you*



*think that it could be more actively incorporated into the way we look at nutrition?*

**GP:** I grew up in a household in which food was very important. My mother was a great cook, and was deeply interested in the nutritional value of food. She was way ahead of her time in that regard. But that doesn't satisfactorily explain my own passion for cooking. I think the main reason is that early in my career as a professional woman, I learned the value of taking time out from the stresses and strains of working life and relaxing by preparing food. In a psychological sense, I became bonded with cooking because it offered me such profound rewards and helped me manage my life better.

I'm glad to say that the value of cooking is receiving more attention in the field in which I work, with community nutritionists in developing countries increasingly helping local communities through demonstrations of food preparation and cooking. So there are some movements in that direction, and I see them as extremely positive, although I haven't personally been involved in them. I'm convinced that many more people in the world could experience the joy that can be derived from cooking, but this requires secure conditions and an enabling environment, which are lacking in many parts of the world today.

**SAL:** *Would you nevertheless share a favorite recipe with us, Gretel?*

**GP:** My favorite recipe is actually almost always changing, and I very rarely cook the same thing twice because I love the fun of cooking new things, or of cooking familiar things in new ways. And that also justifies my addiction to adding yet more cookbooks to my already very extensive collection! Here is a recipe that was developed by my opera conductor son, who loves to cook as much as I do.

**SAL:** *Many thanks, Gretel. I hope that many of our readers try it out!*

**GP:** Thank you.

**SAL:** *Thank you too, and the best of luck with your future projects.*

**Gretel Pelto** was interviewed by Jonathan Steffen

### Gretel Pelto: Career highlights

Gretel Pelto was born and raised in Minneapolis, MN, USA. Her undergraduate education was at Bennington College, where she majored in Dance and Literature; she completed a BA in Sociology (1963) at the University of Minnesota, followed by an MA (1967) and PhD (1970) in Anthropology from the University of Minnesota. In 1996, she was also awarded an honorary doctorate in Nutrition from the University of Helsinki, in recognition of her work in furthering the development of nutritional anthropology in Finland. She was awarded Fellow status in the American Society for Nutrition in 2005. Her primary academic appointments have been in Nutrition departments (University of Connecticut: 1976–1992; Cornell University: 1999–present), where her teaching has focused on maternal and child nutrition, community nutrition, and most recently, program planning and policy.

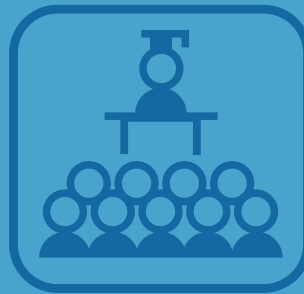
From 1992 to 1999, Gretel oversaw behavioral research in the Division of Child Health at the World Health Organization, Geneva, Switzerland. Her field research has centered mainly on Mexico, and she has also been additionally associated with studies in Latin America, Asia and Africa.

The focus of her research is on infant and young child feeding and household management of illness in infants and children. Her theoretical and social focus is on the interface between programs and families and communities. Throughout her career, Gretel has taken an active role in fostering applied nutritional and medical anthropology through editing specialist journals, serving on national and international research and policy committees, and participating in organizations dedicated to nutrition and anthropology.

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# Kenneth Carpenter

Recipient of the 1993 US Department of Agriculture Atwater medal in recognition of his work on improving the diet of people around the world

## Roger Carpenter

My father, Kenneth Carpenter, who has died aged 93, was an eminent nutritional scientist.

Born in London, Kenneth was the son of James, managing director of a chain of hardware shops, and Dorothy (nee George), a teacher. As a boy, he horrified his parents by wasting his pocket money – as they saw it – on collecting antiques; he had a particular passion for English Delftware, of which he later presented some specimens to the Fitzwilliam Museum, Cambridge.

He attended Merchant Taylors' School, London, leaving in 1941 with an open scholarship to Sidney Sussex College, Cambridge, to study natural sciences, then a PhD at the Dunn Nutritional Laboratory (now MRC Human Nutrition Research), interspersed with war work on nerve gases. Characteristically, he combined all this with obtaining a first in economics as an external student at the University of London.

In 1945, he married Daphne Holmes. Three years later, he was appointed scientific officer at the Rowett Institute in Aberdeen. There he worked on the availability of energy and protein in animal feeds, and also enjoyed attending the local music hall, and sessions of all-in wrestling.

Our family returned to Cambridge in 1956, on his appointment as a lecturer and then reader in nutrition. In 1974, Daphne, my mother, died after a long and debilitating illness, during which Kenneth cared for her.

Following a year as Storer lecturer at the University of California, Davis, in 1977, he accepted an appointment as professor of experimental nutrition at the University of California, Berkeley. Meanwhile, he met Antonina (Nina) Borgman, a teacher, and they married and set up home permanently in Oakland.

An important area of his research both there and in Cambridge was how traditional methods of preparing such foods

as maize and bulgur affected their nutritional value. For his work on improving the diet of people around the world, he received the Atwater medal from the US Department of Agriculture in 1993.

**“His magisterial History of Scurvy and Vitamin C focused on a profound question at the heart of nutritional science”**

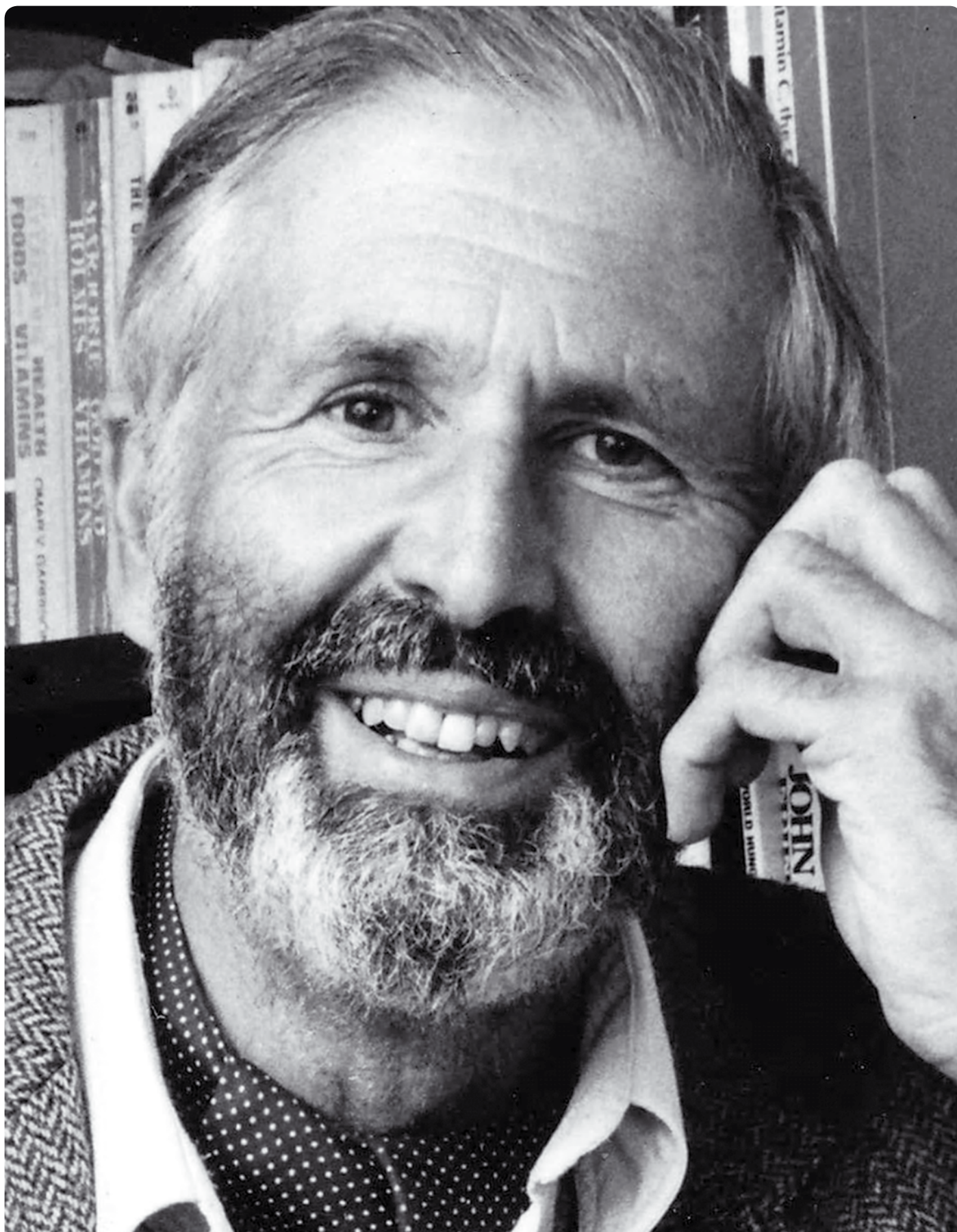
Gradually, his interests began to move towards the history of nutrition. His magisterial, but also very readable, History of Scurvy and Vitamin C focused on a profound question at the heart of nutritional science: Why did it take so long to realize that scurvy was due not to a harmful agent, but to a dietary deficiency? Other books on protein and on beriberi (a disease usually caused by thiamin deficiency) followed.

Kenneth wrote with both elegance and clarity; his integrity and intelligence might have been intimidating had he not been so kind and supportive of his family, colleagues and the many students whom he encouraged and nurtured. He also had a strong social conscience, and in later years devoted a great deal of time to the mentoring of local disadvantaged students, helping them to obtain university places.

He is survived by Nina, me, his grandchildren and his great-grandchildren.

*Photo and text first published in The Guardian on January 12, 2017. Reprinted with permission.*





Kenneth Carpenter became professor of experimental nutrition at the University of California, Berkeley

# Third Hidden Hunger Congress in Stuttgart, Germany

## Noel W Solomons

Executive and Scientific Director | Center for Studies of Sensory Impairment, Aging and Metabolism (CeSSIAM), Guatemala City, Guatemala

Hidden Hunger is a widely-used expression but not a specifically defined concept. It came to prominence in the late 1980s as international public health nutrition of UN agencies, national governments and academia shifted their attention from protein and energy to micronutrients. The term was codified in 1994 in an article by Maberly et al.<sup>1</sup>

Exploration of this concept has been the task of a series of conferences in Stuttgart, Germany, hosted by Hohenheim University and organized by Prof. Hans Konrad Biesalski. The first Hidden Hunger Congress was held in 2013, and was dedicated to the causes and consequences of micronutrient malnutrition and to possible solutions. The second was held under the same auspices in 2015, and addressed the problem in the context of pregnancy and the first two years of life. In March 2017, more than 400 professionals and students from more than 30 countries gathered in the convention center of the Moevenpick Hotel at Stuttgart Airport, Germany for the third conference. This was subtitled: “Post-2015 Agenda and Sustainable Development Goals: Where are we now? Strategies to improve nutrition quality and combat hidden hunger.” Financing came almost exclusively from the German government, with a contribution from DSM Nutritional Products for a reception and dinner on the main campus of Hohenheim University.

The inaugural session of the Congress featured 30-minute presentations by speakers from multiple organizations and sectors, including the World Food Programme of Rome, Italy, and the Bill & Melinda Gates Foundation of Seattle, WA, USA, as well

as various agencies of the German Federal government: the Federal Office of Agriculture and Food (BLE); the Ministry of Food and Agriculture (BMEL); and the Ministry for Economic Cooperation and Development (BMZ). The keynote address was given by Her Excellency Mme Dominique Ouattara, the First Lady of the Republic of the Ivory Coast, in her role as founder and president of the Children of Africa Foundation.

“The majority of presentations focused on holistic approaches to ensure food security through nutrient-sensitive food systems”

### Congress theme: Sustainability

Guided by the subtitle’s key word of “Sustainable,” the majority of presentations, especially in the program of 15-minute case-studies, focused on holistic approaches to ensure food security through nutrient-sensitive food systems. This was focused toward the smallholders who still produce 80 percent of the food in low- and middle-income countries. The terms “food security” or “food-insecure” were frequently mentioned, but without any consensus as to criteria or definition. There was an emphasis on the “quality diet” – broadly conceived as one in which the density of all essential micronutrients was sufficient to meet requirements within the energy consumed. Recognition of the advance of overweight and obesity across the lifespan and the paradox of the “double burden” of malnutrition was reflected both in the theoretical constructs and the on-the-ground agricultural programming. Topics such as women’s empowerment, land tenure and the environmental





Thomas Silbernagel, Parliamentary State Secretary, Federal Ministry for Economic Cooperation and Development (BMZ) addresses a plenary session at the third Hidden Hunger Congress, which attracted over 400 delegates from over 30 countries.

integrity of land, forest and water resources were the focus of the majority of projects presented from Africa and Asia. Latin America was virtually invisible in terms of the practical experience narrative.

#### The views of nutritional and agricultural economists

Consistent with the focus on food systems and security, there were four presentations from economists. Joachim von Braun of the University of Bonn spoke on the imperative for economic and political innovation for success in nutrition. He saw the concept “innovation” essentially in terms of “making things better rather than making better things.” A prominent focus was nutrition policy in the domains of technology, behavior change and food systems and ecology.

Lawrence Haddad, Executive Director of the Global Alliance for Improved Nutrition (GAIN), gave two presentations. In the first, he focused on how we can make food systems deliver a quality diet. Agricultural activities including the production of food, fodder, fuel and fiber across the globe account for 40 percent of worldwide income. One in 14 people on earth is directly involved as a food producer. Where the agricultural activity involves a non-nutritional food, such as cocoa beans, issues of fairness throughout the system, including fair trade, emerge. In his second talk, Dr Haddad focused on how businesses and the public sector can work together to improve people’s nutritional status. His observations focused on production and trade, using cocoa production as an example, in terms of nutritional status related to body size, rather than micronutrient status.

.....  
**“Academic speakers provided 30-minute presentations in the areas of basic, clinical and epidemiological sciences”**  
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Finally, Martin Qaim of the University of Göttingen, Germany, spoke on the topic of the linkage between production diversity and dietary quality in smallholder households. He explored the paradoxical situation whereby the ability to generate or have monetary income was more determinant of diversity of intake than is the diversity of the foods cultivated on the plots of smallholder households. For Dr Qaim, it is nutrition-sensitive agriculture with food-system diversity that is needed for a quality diet.

#### Scientific insights into Hidden Hunger

Seven invited speakers dedicated to academic research provided 30-minute presentations in the areas of basic, clinical and epidemiological sciences. Robert Black of Johns Hopkins School of Public Health, Baltimore, MD, USA, outlined the current global status of all forms of malnutrition, both under- and overnutrition, and especially their relationship to morbidity and mortality of young children. The importance of prenatal determinants for adequate fetal growth related to prematurity and intrauterine growth failure was emphasized.

Howarth Bouis, founding Director of the HarvestPlus program of the International Food Policy Research Institute (IFPRI), Washington DC, USA, was the 2016 Laureate of the prestigious World Food Prize, awarded for demonstration of the viability of biofortification of food crops. Dr Bouis reviewed the plant hybridization processes and global progress toward developing of varieties enriched with provitamin A sources, folates, iron and zinc. Sweet potatoes, rice, maize, wheat and legumes are the staples currently involved in biofortification initiatives.

Keith West Jr of Johns Hopkins School of Public Health, Baltimore, MD, USA, addressed the issue of micronutrient deficiencies in the context of pregnancy in underprivileged regions of the world. In such settings, multiple micronutrient deficiencies would be the rule, making multiple micronutrient (MMN) supplements a more rational prescription for prenatal care than simply iron and folic acid. Dr West cited evidence that modest impact



Delegates listen attentively at the third Hidden Hunger Congress, held in Germany under the auspices of the University of Hohenheim-Stuttgart, March 20–22, 2017.



**Box 1: Pertinent parallel sessions****New approaches to monitor dietary intakes and their relation to health****Chaired by Hans Konrad Biesalski***Sponsored by the Sabri Ülkler Food Research Foundation of Turkey***Hans K Biesalski** Hidden and neglected – Nutrition gaps! Why do we need assessment?**Mirjana Gurinović** New technologies for dietary intake assessment**Burcu Arkoy** Self-Check Programme: Impact on nutrition on health**Rationale for public health to address emerging micronutrients in Hidden Hunger: Vitamin D, vitamin K, vitamin E, essential fatty acids, amino acids****Co-chaired by Klaus Kraemer and Noel W Solomons***Sponsored by Sight and Life***Kevin D Cashman** Vitamins D and K: Micronutrient deficiencies of public health significance or hype?**Keith P West, Jr** Vitamin E deficiency: Global burden and consequence**C Marius Smuts** Essential fatty acids in the first 1,000 days**Shibani Ghosh** The role of protein and amino acids in infant and young child nutrition and relationship with growth

on fetal growth and infant health have been documented in the controlled trials of MMN across the world.

Jack Winkler of London Metropolitan University, UK, addressed the paradoxes surrounding achieving satisfaction of the recommended long-chain omega-3 amino acids eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). The conventional source is marine fish. Another source is the algae upon which the fish feed. The most conservative recommendation for daily combined intake for adult is 250 mg. The two salient points were: **1)** few individuals are currently achieving their recommended long-chain omega-3 intake; and **2)** we do not have sufficient food sources available to cover this intake globally.

Three major presentations focused on function and health of the gastrointestinal tract. The author of this report spoke on features of evolutionary biology that govern the uptake and internal metabolism and utilization of the trace elements iron and zinc. Using the detailed understanding of molecular and cellular biology, Dr Solomons illustrated the constraints for high-dose administration of the nutrients to be safe and effective in public health intervention; with iron and zinc, there are inherent issues in their efficiency of absorption, the completeness of their retention and the extent of their biological utilization that may confound the intent of the intervention. Moreover, exposure of the unabsorbed trace elements to the microbial flora of the large intestine can have adverse (iron) or beneficial (zinc) effects on bowel health.

Irwin Rosenberg of the Friedman School of Nutrition Science and Policy of Tufts University in Boston, MA, USA, is credited with modernizing the concept of tropical enteropathy of the 1970s to an entity known as “environmental enteric dysfunction” (EED) as a potential mediator of poor growth and undernutrition. The pathological changes for the intestine are presumed to have consequences for nutrient absorption and local and systemic inflammation.

Tahmeed Ahmed of the International Center on Diarrheal Disease Research in Dhaka, Bangladesh, examined the interaction of the human microbiome and human nutritional status. Dr Ahmed cited studies relating the intestinal microbiota to nutritional status that are available from Malawi and Bangladesh, but these currently relate more to growth in height and weight than to any specific micronutrient(s).

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**“Four distinguished experts were tasked with predicting the priorities for food fortification over the coming three decades”**

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**The impact and challenge of food fortification**

Chaired and moderated by Prof. Biesalski, four distinguished experts, each with a different perspective, were tasked with predicting the priorities for food fortification over the coming three decades. Howarth Bouis emphasized the diverse possibilities of increasing the number of micronutrients and the number of crops and edible plants that might be engaged going forward. Rolf Klemm of Helen Keller International, New York, NY, USA, offered an optimistic view concerning some of the micronutrients currently addressed by periodic supplementation programs as evidence of the safety and effectiveness of food fortification.

Michael Krawinkel of the University of Giessen, Germany, urged dietary diversification using locally produced foods, includ-



Speakers and co-chairs from the parallel session “Rationale for public health to address emerging micronutrients in Hidden Hunger” (from left to right): Shibani Gosh (Tufts University, USA); Klaus Kraemer (co-chair, *Sight and Life*, Switzerland); Noel Solomons (co-chair, CeSSIAM, Guatemala); Kevin Cashman (University College Cork, Ireland); Keith West (Johns Hopkins Bloomberg School of Public Health, USA); and Marius Smuts (Northwest University, South Africa)

ing the restoring of indigenous foods that are no longer cultivated/ consumed on a large scale, to minimize environmental impacts.

Irwin Rosenberg of Tufts University raised concerns regarding the rationalizing of fortification policies to avoid excessive intakes among the relative “over-consumers” of fortified items. Issues raised were the degree to which the targeted populations need to be made aware of the addition of micronutrients to their food supply, and how appropriate salt and sugar are as vehicles for nutrient fortification.

#### Intimacy of new insights within the parallel session format

Three parallel sessions ran concurrently with the afternoon plenary sessions under the sponsorship of specific organizations. The first and last of these (see **Box 1**) provided substantive contributions regarding the technical and scientific aspects of hidden hunger. They were held in a break-out auditorium which seated 60 participants, so congress delegates could get an intimate interaction around these themes of interest.

In the first session, sponsored by the Sabri Ülkler Food Research Foundation of Istanbul, Turkey, the Congress President, Hans Konrad Biesalski, gave a talk on evidence of gaps between the estimated intakes of many micronutrients and the recommended amounts to be consumed (see **Box 1**, upper panel). Pos-

sible implications for widespread public health impacts were enumerated. The technical contribution in the second session outlined a series of emerging digital- and video-based measures that allow quantitative estimates of intake for the previous 24 hours or the frequency of items consumed in the recent past. In Turkey, an online, self-administered “self-check” program allows clients to file a report on their own intake and receive an individualized interpretation and recommendations for dietary improvements. Some 1,500 respondents have been registered on the website since it was inaugurated in 2015. Analysis of these data, albeit from this self-selected and health-interested group of respondents, reveals numerous patterns of deficiency, including low intakes of calcium. A comment from a member of the audience was that estimates of low dietary intake without measurement of nutrient status limit the reliability of consumption information for identifying true micronutrient deficiencies.

The third parallel session of the meeting, which was sponsored by *Sight and Life*, examined the relevance of five micronutrients which currently have nil or only limited projection into public health policy and programs (see **Box 1**, lower panel). Evidence of insufficient dietary intakes of both vitamin D and vitamin K in child and/or adult populations of Europe was presented, along with the findings of low 25-OH vitamin D levels

in this high-income setting. This was bolstered by observations of low-circulating  $\alpha$ -tocopherol levels from Nepal and Bangladesh in South Asia, along with functional responses to oral vitamin E supplementation, which suggest that deficiencies in this fat-soluble vitamin are a public health issue in the region. Vulnerability to deficient intakes and inadequate status of the omega-3 essential fatty acids EPA and DHA were documented in infants and adults from diverse geographical areas of the developing world.

Finally, the emerging evidence that the essential amino acids we consume have a significance beyond their contribution to the quality of dietary protein was addressed – that is, the previously unappreciated magnitude of the participation of specific amino acids in diverse functional roles in metabolism and regulation – suggesting their consideration as micronutrients in their own right.

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## “The third Hidden Hunger Congress was an important meeting for global public health”

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### Conclusion

The third Hidden Hunger Congress was an important meeting for global public health; in many respects, it was more contemplative and reflective than other meetings on micronutrients. This

third meeting in the series examined the medium- and long-term future toward 2030 and beyond, and drew on the spirit of the UN Sustainable Development Goals. It focused on actions for both the health of humanity and the well-being of the earth’s environment and resources, including water and land. The proposals were constrained by a realization of intrinsic trade-offs in the interventions to increase micronutrient security. Achieving this latter goal was viewed more integrally and holistically, it was seen as more tied to food security in general and to the food systems we carry forth into the 21<sup>st</sup> century than to the immediate outreach and coverage of vulnerable populations with micronutrient fortification and supplementation. Put another way, the systems and contexts by which food is produced, distributed and consumed across the globe are as essential to the fight against hidden hunger as are specific interventions with micronutrients.

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# Vitamin Angels Presents Innovative Model at Micronutrient Forum Conference

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## Clayton Ajello

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## Enrique Rios Espinosa

Consultor, Vitamin Angels, Mexico City, Mexico

## Odin Rodriguez Peralta

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## José de Jesús Méndez de Lira

Centro Nacional para la Salud de la Infancia  
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The second Micronutrient Forum Global Conference was held in Cancun, Mexico on October 24–28, 2016, convening over 700 participants from 73 countries and 336 organizations around the world on the theme of “Positioning Women’s Nutrition at the Center of Sustainable Development.”

Vitamin Angels (VA), a US-based non-profit, brought together a group of public health professionals, including high-ranking individuals from a non-governmental organization (NGO) in Mexico, Un Kilo de Ayuda [A Kilo of Help], and the Mexican Ministry of Health, to present on Vitamin Angels’ unique distribution model. Vitamin Angels’ symposia focused on the application of this model in Mexico and how it can be leveraged to scale up multiple micronutrient supplements to at-risk, hard-to-reach pregnant women.

## The Vitamin Angels model

Vitamin Angels’ mission is to help at-risk populations in need – specifically pregnant women, new mothers, and children under five – to gain access to lifesaving and life-changing vitamins and minerals. VA’s model was premised on the reality that not every person has access to national health services, and NGOs can help to fill gaps in coverage by effectively deploying a range of proven nutrition interventions at a low cost and in harmony with national health services. VA supports a range of evidence-based nutrition interventions, annually reaching over 51 million beneficiaries in 57 different countries, through 1,000 locally registered NGOs.<sup>1</sup> VA initiated its vitamin A supplementation program in 2007, and has since refined its model to deliver an expanded range of nutrition interventions, including prenatal multiple micronutrient supplements, interventions to prevent child infections that adversely affect nutritional status, and promotion of optimal infant and young child feeding practices.

“VA’s ‘grass-roots’ model centers on strengthening the capacity of locally registered NGOs to deliver nutrition services”

Globally, multilateral agencies support the implementation of these nutrition interventions using a top-down approach that strengthens the delivery of services through national health systems. In contrast to this approach, VA’s “grass-roots” model centers on strengthening the capacity of locally registered NGOs to deliver nutrition services in a manner that is coordinated, where possible, with national health services. This model focuses on supporting NGOs with existing programs that have local knowledge of the populations they serve and can absorb

**TABLE 1:** Illustration of how Vitamin Angels adds value to national nutrition efforts to close the coverage gap in Mexico

	Vitamin A to children 6–59 months	Deworming to children 24–59 months	Women’s multiple micronutrient supplements
<b>Target population<sup>a,b</sup></b>	8,291,290	4,776,500	191,084 <sup>c</sup>
<b>No   % covered by government (2013)<sup>a</sup></b>	7,454,758 90 %	4,500,900 94 %	7,065 4 %
<b>No   % covered by Vitamin Angels (2016)</b>	256,250 3 %	239,000 5 %	10,439 5 %

<sup>a</sup>Includes the population *targeted* by the Ministry of Health of Mexico for each program, not the total population.

<sup>b</sup>Data used with permission from Centro Nacional para la Salud de la Infancia y la Adolescencia (CENSIA).

<sup>c</sup>Includes Ministry of Health targets for both folic acid and multiple micronutrients (MMNs) for pregnant women. In the future, MMNs may replace folic acid and therefore can be considered a target population for MMNs.

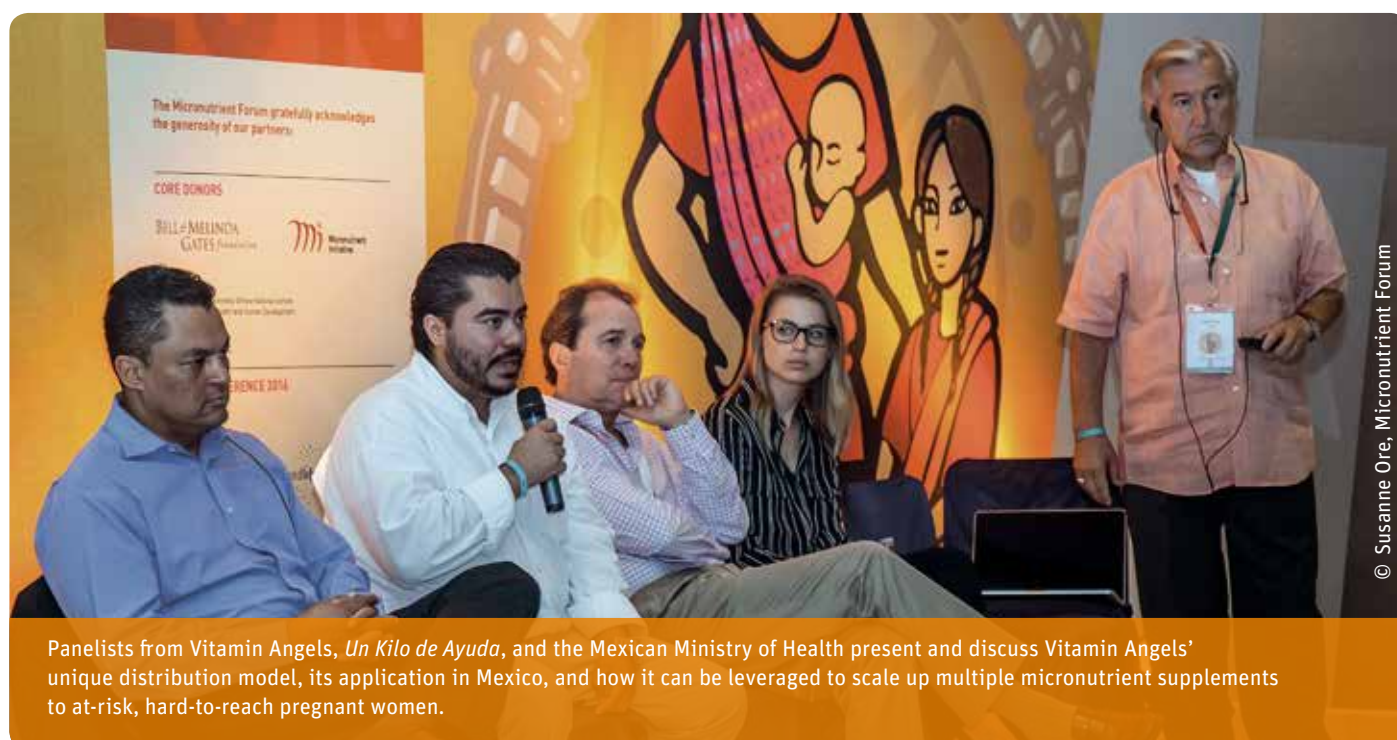
the incremental costs of adding nutrition services to their range of services, or expanding upon existing nutrition services. VA provides NGOs with the commodities and technical assistance needed to ensure that activation of services is consistent with best practices adapted to local conditions.

#### Case study: VA’s model in Mexico

By applying the model described above, Vitamin Angels has successfully worked with NGOs to identify and provide nutrition services to at-risk populations in many countries, including Mexico. In order to create a more locally sustainable supply and distribution platform in selected countries, VA engages a local

“country program advisor.” This person’s role is to facilitate the identification and aggregation of a network of local NGOs to deploy nutrition interventions, determine or verify product needs, facilitate coordination with governmental authorities, and provide and manage a program of technical assistance to our NGO field partners. In Mexico, the local program advisor has worked to target NGOs serving rural and indigenous communities as well as marginalized urban areas throughout the country.

Vitamin Angels’ partnership with the Mexican non-profit, Un Kilo de Ayuda, exemplifies the success of our model in expanding coverage to the hardest-to-reach populations. Un Kilo de Ayuda integrated VA interventions into their “Integrated Model



Panelists from Vitamin Angels, *Un Kilo de Ayuda*, and the Mexican Ministry of Health present and discuss Vitamin Angels’ unique distribution model, its application in Mexico, and how it can be leveraged to scale up multiple micronutrient supplements to at-risk, hard-to-reach pregnant women.



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Odin Rodriguez Peralta from *Un Kilo de Ayuda* answers a question from the audience about how they integrated Vitamin Angels' support into their existing programs to help increase coverage of nutrition-related interventions in Mexico.

for Early Childhood Development,” helping to expand services to the 50,000 children and over 2,000 women they serve in over 1,000 communities in six Mexican states. With VA's support, they incorporated technical assistance and training materials into their activities, training over 100 facilitators in Mexico. *Un Kilo de Ayuda* collaborates closely with local ministries of health, ensuring their activities are coordinated and not duplicative.

### “VA's partnership with *Un Kilo de Ayuda* exemplifies the success of our model”

**Table 1** illustrates the value-add provided by local NGOs, with VA assistance, to national efforts to alleviate undernutrition in Mexico. After only 15 months, Vitamin Angels' local NGO partners reached an additional 3% of eligible young children with vitamin A, an additional 5% of eligible children with deworming treatment, and an additional 5% of eligible pregnant women with multiple micronutrient supplementation.

The success of this model is rooted in the importance placed on coordination between local NGO partners and government authorities. Vitamin Angels worked closely with the national Ministry of Health (MOH) to review state-level maternal and child health coverage rates in order to prioritize VA's outreach and expansion of programs. Once a state was prioritized, the MOH helped to provide introductions between VA and local MOH

and NGO officials, and assisted in facilitating meetings focused on identifying gaps in coverage.

#### Leveraging a proven approach

Using the model described above, Vitamin Angels initiated its flagship vitamin A supplementation program in 2007, and has since scaled up vitamin A distribution globally – expanding its reach from under two million beneficiaries in 2008<sup>2</sup> to over 40 million in 2016.<sup>3</sup> In 2010, VA started to explore large-scale deployment of albendazole through a growing, global platform of NGOs to expand deworming programs for preschool-aged children. By 2016, deworming services among our NGO field partners expanded to reach to over 25 million preschool-age children<sup>4</sup> – giving this platform the distinction of delivering approximately 20% of the total deworming treatments to preschool-aged children globally.<sup>5</sup>

As currently configured, Vitamin Angels' network constitutes a locally sustainable “platform” for delivering selected nutrition services to hard-to-reach beneficiaries, but has demonstrated its potential – as shown in Mexico and beyond – to be broadened with respect to the range of services offered and the numbers of at-risk persons served.

Currently, there is a pressing need and opportunity to improve birth outcomes by connecting increased numbers of pregnant women with multiple micronutrient (MMN) supplementation. MMN supplementation of pregnant women has been shown to have benefits on birth outcomes over use of iron & folic acid alone.<sup>6</sup> Thus, VA has begun to expand its focus on the deployment of this intervention. VA currently reaches approximately



400,000 pregnant women annually<sup>7</sup> with multiple micronutrient supplementation, and is poised to scale up deployment of prenatal multiple micronutrient supplementation for women over the next several years.

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## “VA's network is a locally sustainable ‘platform’ for delivering nutrition services to hard-to-reach beneficiaries”

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### Looking forward

With the expansion of VA's reach through a platform of NGO field partners, and the addition of support for entirely new interventions, VA offers a unique model to reach meaningful numbers of at-risk beneficiaries who have limited access to national health services. Vitamin Angels will continue to: **1)** scale up the provision of proven nutrition interventions for underserved at-risk populations through NGOs; **2)** add support for a broader range of nutrition services; **3)** increase availability of our technical assistance and product resources; and **4)** work more systematically to coordinate activities with multilateral agencies and governmental authorities. Building a larger, locally sustainable, supply and distribution platform will also require Vitamin Angels to engage additional local country program advisors able to facilitate coordination among stakeholders.

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# For a world free from malnutrition.

**share**  
best practices

We are committed to increasing  
the knowledge of nutrition's value  
in health and development.



# Nutrition and School Performance

## Cheril Munters tells a moving success story

### Cheril Munters

Volunteer, Ramala Women Group



Children learning from an RWG volunteer about the importance of good nutrition (front cover of the 2/2004 issue of this magazine)

### Ramala Women Group (RWG) Food and Nutrition Program

Confronted by a nutrition crisis among children under the age of five in Kenya in the early years of this century, Ramala Women Group in Kenya set up a Food and Nutrition Program that was lucky to receive very timely support from *Sight and Life*. I write as a beneficiary of that program.

Targeting severely malnourished children below the age of five from communities of Migori and the neighboring counties in Kenya, the program used integrated approaches to fight micronutrient deficiencies. In 2003 – when I was a severely malnourished three-year-old on the brink of death – I had the good fortune to be introduced to Ramala Women Group by a social worker. Through their Food and Nutrition Program, I was given food enriched with Mix Me™ (provided by *Sight and Life*) from the day of my inclusion in the program. If *Sight and Life* had not supported RWG's Food and Nutrition Program, I would not be

here today to share my story about the value of proper nutrition and how it positively influences performance at school.

### My success story

Close to one year into the program, my health significantly improved, as highlighted in *Sight and Life* 2/2004. Investing in young Kenyan lives means investing in the future of a great nation. Fighting micronutrient deficiencies provides hope for vulnerable and marginalized children in the country. I am profoundly humbled to be able to testify just how much good nutrition influences children's performance at school.

I attribute my successful performance in the KCSE 2016 at Ogande Girls High School first and foremost to God, and secondly to *Sight and Life*. Today, I am among the 88,000 young Kenyans who have attained the minimum grade of C+, allowing them to pursue any Bachelor's degree course of their choice at



Cheril Munters in pre-school at Rongo Baptist Kindergarten, holding food enriched with MixMe™ micronutrient powders





Cheril Munters today

any university in Kenya. *Sight and Life* gave me a new lease of life and a vision to help the many young children who today are still suffering from micronutrient deficiencies in Kenya, just as I suffered myself 14 years ago.

Today, I am a volunteer at Ramala Women Group. My main role is to visit households and schools, sensitizing them to understand the value of proper nutrition, the importance of micronutrients, and the dangers associated with micronutrient deficiencies. My ambition is to educate the masses about nutrition and micronutrients by sharing information and educating children, households and communities in the subject. I hope to take a degree in either food or dietetics or in education, and to follow this up with a postgraduate degree in one of these subjects. I believe that studying at university will equip me with the skills and tools I will need in order to be able to communicate the importance of good nutrition to children, households and communities in Migori and neighboring counties within the Republic of Kenya.

### A passionate appeal

I would like to make a passionate appeal to *Sight and Life* to resume their support of Ramala Women Group so that many more children like myself may not only have hope for the future but may also have the chance to share their understanding of the value of proper food and nutrition within households and

schools. In my daily work as a volunteer with RWG, I have met so many children who are like I was 14 years ago, and my heart grieves for them: Who will come to their aid as *Sight and Life* came to mine? They are destitute, and in dire need of the support of every person of good heart. Please, *Sight and Life*, come to their assistance as you came to mine. Thank you again, and God bless you.

### Correspondence: Cheril Munters,

Volunteer at Ramala Women Group, P. O. Box 119,  
Rongo – 40404. Kenya

**Email:** ramalawomengroups@email.com

### Stop press

We have just learned that Cheril has secured a place to study for a Bachelor's degree in Journalism at Maasai Mara University, Narok, Kenya. This is a very competitive course, and receiving a place on it is a great achievement in itself. Our sincere congratulations go to her! We wish Cheril every success with her studies, and look forward to being kept up to date on her progress [Ed.].

# Evaluation of the MNP Pilot Intervention in Kwazulu-Natal, South Africa

## Lenore Spies

Director, Nutrition Directorate,  
Kwazulu-Natal Department of Health,  
Pietermaritzburg, South Africa

## Zamazulu Mtshali

Deputy Director, Nutrition Directorate,  
Kwazulu-Natal Department of Health,  
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## Sthandiwe Monegi

Assistant Director, Nutrition Directorate,  
Kwazulu-Natal Department of Health,  
Pietermaritzburg, South Africa

### Key messages

- > The Kwazulu-Natal (KZN) Department of Health implemented a micronutrient powder pilot intervention program targeting children aged 6–24 months.
- > The purpose of this intervention was to assess the acceptability and feasibility of introducing the micronutrient powder pilot intervention program into the current health system.
- > Overall, micronutrient powders were accepted by the healthcare workers and by the mothers/caregivers.
- > The KZN Province subsequently decided to implement the recommendations from the evaluation report in three districts to ensure proper alignment with current health systems.

### The need to address inadequate micronutrient intakes

Optimum nutrition during the first 1,000 days is critical for child survival. Poor nutrition during this period is linked to poor child

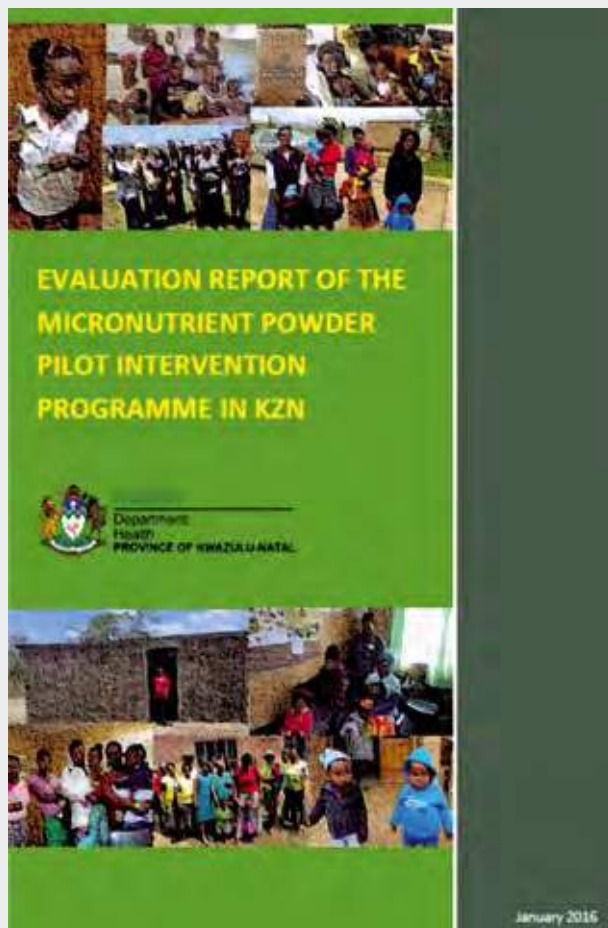
health outcomes. Children are more vulnerable to micronutrient malnutrition due to rapid growth and development.<sup>1</sup> The National Food Consumption Survey (NFCS-FB) 2005 demonstrated that South African children's intakes of micronutrients were below 67% of the RDAs for calcium, iron, zinc, selenium, vitamin A, vitamin D, vitamin C, vitamin E, riboflavin, niacin, folic acid and vitamin B<sub>6</sub>.<sup>2</sup> Factors contributing to poor micronutrient intake and stunting in children in South Africa include the early introduction of solid foods, low rates of exclusive breastfeeding, lack of dietary diversity, and complementary foods based on maize but low in animal foods, vegetables and fruits.<sup>3,4</sup>

The KZN Department of Health took action by implementing the micronutrient powder pilot intervention program targeting children aged 6–24 months. The purpose of this intervention was to improve the nutrient adequacy of complementary foods, to promote and strengthen appropriate complementary feeding practices and to assess the acceptability and feasibility of introducing the micronutrient powder pilot intervention program into the current health system.

Each 1 g sachet of MNP provided 15 micronutrients at 100% of the Recommended Nutrient Intake for children aged 6–59 months. Mothers and caregivers of children aged 6–24 months in 169 poor wards were targeted for distribution through clinics, households and Phila Mntwana centers (community-based structures). The poor wards were identified by the KZN Premier as part of the Poverty Eradication Master Plan and based on economic deprivation indicators. The identified poor wards were targeted as it was assumed that micronutrient deficiency would be higher in these wards. In order to facilitate an informed decision on the feasibility and overall sustainability of this pilot intervention and next steps, an evaluation was undertaken post pilot implementation, to assess how well this worked within the current health system and identify the barriers/challenges to adoption. Fifty percent of the piloted districts were targeted for more detailed feedback (5 out of 10 districts).

Districts with the greatest number of MNP sachets received during the pilot were prioritized for sampling because it was felt that these would best reflect the issues faced. For each of the

**FIGURE 1:** Front cover of the *Evaluation report of the micronutrient powder pilot intervention program in KZN*



five selected districts, the three most populous wards in terms of children aged 6–24 months were selected from the list of poor wards targeted. In each of the selected wards, implementers from all clinics in the ward were interviewed. A focus group interview with recipients was also undertaken for each selected ward in each of the five districts.

### Objectives of the evaluation

The objectives of this evaluation were to assess the acceptability and feasibility of this intervention in the current healthcare system by interviewing the implementers, and to assess the acceptability and use of the MNPs by the recipients.

### Methodology

A mixed method study was conducted. The study was led by an independent consultant together with three nutrition professionals who were field workers. Fifty percent (n=5) of the piloted districts were targeted for participation. Pre-tested, semi-structured questionnaires were administered to healthcare

workers by means of interviews. Fifty (n=50) interviews were held with healthcare workers, 18 group interviews with community care givers (CCGs) were held, and 18 focus group discussions were held with mothers and caregivers. Data was analyzed using a specifically designed MS Excel spreadsheet.

“Overall, mothers/caregivers were enthusiastic about the positive effects experienced by their children on using MNP”

### Findings

#### Acceptability

Sixty-three out of 68 (93%) of the healthcare workers indicated that the micronutrient powders were important to improve the health of the child. Overall, mothers/caregivers accepted the intervention well and were enthusiastic about the positive effects experienced by their children using MNP.

#### Feasibility

Sixty out of 64 (94%) healthcare workers interviewed indicated that the MNP intervention fitted in well and easily with other nutrition and child health interventions. Over 70% of healthcare workers experienced no problems with regard to delivery, storage, distribution, stock control and reporting. About 30% of the healthcare workers indicated that communication on delivery, distribution, and storage space could be improved.

#### Training

Just over half (56%) of the healthcare workers interviewed reported satisfaction with the training and support provided prior to the implementation of the MNP pilot intervention, while 51% indicated that they made reference to the standard operating procedure. Eighteen percent (n=8) of the healthcare workers recalled having discussed appropriate feeding of the child with the mothers/caregivers. The feeding advice only focused on adding the MNP to porridge.

#### Conclusion

The findings in this evaluation compare with the literature in terms of acceptability among mothers/caregivers and recognition of the benefits to the child.<sup>5</sup> Overall, micronutrient powders were accepted by the healthcare workers and by the mothers/caregivers. However, logistical arrangements require attention for future implementations. In order to address challenges and concerns that emanated from the evaluation process, the KZN Province subsequently decided to implement the recommen-



**FIGURE 2:** Standard operating procedures for issuing and administering of micronutrient powders to children 6–24 months by healthcare workers

**PURPOSE**

- To improve micronutrient intake of populations based for children between 6-24 months through delivery of micronutrient powders at the point of food intake
- To plan and coordinate activities, planning, monitoring and support for the targeted child
- To inform and educate mothers and caregivers on infant and young child feeding including introduction of appropriate complementary foods

**BEFORE GIVING MICRONUTRIENT POWDERS**

- Ask for the Child's Weight to be measured (if the child is under 5 years old MA have a PMS)
- Follow local procedures to ensure that the child is issued with a PMS
- Find out the services for which the extreme weight has come to the child
- Weigh the child and record on the ITTB
- Measure the length or height of the child and record on the ITTB
- Measure MUAC for children 6-24 months and record on the ITTB
- Plot the weight on the weight-for-age growth chart
- Plot the height or length on the weight-for-length (growth) chart
- Measure mid-upper arm circumference and give support to the mother or caregiver

**ISSUING OF MICRONUTRIENT POWDERS**

- Explain to the mother the purpose of this intervention
- Make sure you explain from 6-24 months of age that the child needs iron and vitamins to grow and stay healthy
- Explain that the powder is added to the child's food
- Explain that the powder is added to the child's food
- Explain that the powder is added to the child's food

**HOME FORTIFICATION WITH MNP HELPS TO ENRICH THE DIET (E.G. COMPLEMENTARY FOODS AND BREAK MILK CONSUMPTION) WITH THE ESSENTIAL NUTRIENTS OF YOUNG CHILDREN**

**CONSENT**

Obtain written consent from the parent/legal guardian by means of signing the consent form if child is not brought by the parent to the clinic. Signed consent forms should be returned to the clinic for record keeping.

**HOW TO GIVE MICRONUTRIENT POWDERS TO A CHILD BETWEEN 6-24 MONTHS**

- Check the expiry date on the label. Check the label to determine if the label is correct
- Give 32 x 2 sachets to the mother (average 20 sachets for a two month's supply)
- Explain to the mother how to give the powder every alternative day preferably at the morning meal (breastfeed, formula or weaning) to avoid fluids with running water and avoid before bedtime
- Explain to the mother how to give the powder
- Explain to the mother to avoid giving fluids to the child before the powder is given
- Explain to the mother to avoid giving fluids to the child before the powder is given
- Explain to the mother to avoid giving fluids to the child before the powder is given

**RECORDING OF MICRONUTRIENT POWDERS ON THE ITTB AND REGISTER**

- Record on the ITTB after issuing the supply of micronutrients: "Micronutrient Powder issued" and the quantity given
- Record the date and sign
- Record on the micronutrient register the following: Child's name, age, home address, contact number, weight, height, MUAC, nutritional status, i.e. MAM or SAM and the number of micronutrient packets issued

dations from the evaluation report in three districts to ensure proper alignment with current health systems.

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# A Farm Grows in a Brick City

## Transforming agriculture and communities

### Marc Oshima

Co-Founder | Chief Marketing Officer, AeroFarms  
AeroFarms, Newark, NJ, USA

### Key messages

- > AeroFarms in Newark, NJ, USA, is an urban farm that grows without sun or soil in a fully controlled indoor environment.
- > AeroFarms is the first and only agriculture company to date to be honored by the Ellen MacArthur Foundation as one of the Circular Economy 100.
- > The design of the system permits the pesticide-free cultivation of nutritious produce in an area with poor air quality, seven percent unemployment, and significant public health problems.
- > AeroFarms has a working farm in a school: proximity to the produce as it is grown encourages the students to adopt and maintain healthy eating habits.

### The role of urban farms in the health of a city as we see it

Newark is a vibrant city with a story-filled history and innovation in its soul, but it is one of the sickest cities in America. According to a 2010 Centers for Disease Control (CDC) study, 60 percent of the population was overweight, infant mortality rates were above 10 per 1,000 live births, and one in four children has asthma, most likely due to poor air quality.<sup>1</sup> One might wonder why AeroFarms, a global leader in agriculture technology innovation and builder of the world's largest indoor vertical farm, has chosen to make Newark its home.

When looking to improve health outcomes in a city like Newark, one might imagine a state-of-the-art hospital or community centers with diet and lifestyle education. While those are both worthy endeavors, we are challenging city officials, community members and health professionals all over the United States to think: farm.

“We are challenging city officials, community members and health professionals all over the US to think: ‘farm’”

### A new kind of farm

AeroFarms is not just any farm. And not just any urban farm. We grow without sun or soil in a fully controlled indoor environment, leading the way for indoor vertical farming, enabling local production at scale to feed the masses. We use a method called aeroponics to mist the roots of our greens with nutrients, water, and oxygen and they grow in a special cloth of our own design. We use 95 percent less water than field farming and have developed a closed-loop water circulation system that recirculates water to our plants. This innovation made us the first and only agriculture company to date to be honored by the Ellen MacArthur Foundation as one of the Circular Economy 100, a select group of global companies focused on eliminating waste and improving our positive impact on the environment and sustainability. It is this impact that has led us to become a certified B-Corporation.

We use LED lights to create a specific light recipe for each plant, giving the greens exactly the spectrum, intensity, and frequency they need for more effective photosynthesis in the most energy-efficient way possible. This engineered lighting allows us



Interior of AeroFarms' vertical farm in Rome Street, Newark, NJ



© AeroFarms

to control size, shape, texture, color, flavor, and nutrition with razor-sharp precision and increased productivity.

We are constantly monitoring all the macro- and micro-nutrients for our plants to provide them with everything that they need to thrive. We are able to take the exact same seed from the field and grow it in half the time needed by a traditional field farmer, leading to 130 times more productivity per square foot than a commercial field farm.

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**“We are 130 times more productive per square foot than a commercial field farm”**

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The design of the system, combined with the environmental controls we strictly enforce, allows us to grow produce without using pesticides. We are able to provide consumers with clean, ready-to-eat greens that do not need to be washed. All of this means that the greens we grow are extremely high quality with consistent delicious taste, stellar nutrition, and year-round availability. And we do it all in an area with poor air quality, seven percent unemployment, and some seriously concerning health trends.

#### Local hiring

Newark, NJ, is a city in need of new industries and healthy food. As a mission-driven company, we think about how our work can

positively impact all our stakeholders, particularly the community. We have created more than 120 jobs with year-round employment, on-the-job training, and opportunities for advancement. In his March “State of the City” address, Mayor Ras Baraka explained that only 18 percent of the jobs created in Newark go to Newark residents. We are particularly proud of the fact that we have been able to hire locally, and over 85 percent of our team lives within 15 miles of our farm, creating a deep connection with the community. That’s part of the reason that Mayor Baraka encouraged Newarkers to “buy Newark” by buying our greens from the brand-new Newark Whole Foods Market and ShopRite Newark.

On Wednesdays, when we open our doors to the community to purchase greens straight from the farm, we meet new people every week who are just learning that agriculture is happening at scale in their industrial backyard. There is a sense of pride in their city that encourages people to try new foods. Indeed, on our AeroFarms team, the pride that comes from seeding, tending, harvesting and packing these greens leads to a willingness to try baby greens – and for many of our team members, baby greens in any of the area restaurants or stores were, until recently, hard to come by.

We also help combat “food deserts” – areas designated by the US government as not having access to full-service grocery stores in their area. We open our doors to the community every week to sell freshly harvested greens so as to make eating healthy easier for our neighbors. We sell to a wide range of customers from major supermarkets, to major food service



companies, to institutions/schools, to restaurants, to farmers' markets, to families. Our whole goal is democratizing access to good healthy food.

**Farm to school: Cultivating food habits**

Our impact in the community goes deeper than converting its empty buildings, hiring its residents, or stocking its local grocery shelves.

Our farming technology is very flexible in adapting to different spaces, and we have a working farm in a school – Philips Academy Charter School – that is located in a low-income community in Newark, NJ. The six-foot-tall two-tiered growing tower is right in the school's dining hall, creating the shortest farm-to-table experience around. The farm is chef-driven and teacher-guided, but ultimately student-managed, and the students love seeing how their food is grown. The integration of healthy, scratch-made foods into curriculum across grades and subjects, implemented by Ecospaces Education Program Director Frank Montesana and Chef Robert Wallauer, has even garnered the attention of former First Lady Michelle Obama, who visited the school in April 2016 as a part of the Let's Move campaign garden tour.

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**“Growing and harvesting the greens themselves gives the students a real connection to food”**  
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Growing and harvesting the greens themselves gives the students a real connection to food like nothing else can. When the students take pride in growing greens, they are more than likely to eat them. And this is not simply anecdotal: research backs it up.

According to Cooke, who reviewed research on healthy eating in childhood, “perhaps the most important determinant of

a child's liking for a particular food is the extent to which it is familiar. Put simply, children like what they know and they eat what they like.”<sup>2</sup>

So, proximity to this revolutionary way of growing doesn't just spark the students' imaginations, encouraging them to ignore convention just like our inventor-in-chief Dr Ed Harwood is constantly doing; it actually teaches them to love greens.

Through this small farm and the remarkable program the school has built around it, not only are we able to facilitate the healthy feeding of hundreds of children at this crucial stage of their growth, but we are also fostering lifelong habits that will spread outward through their communities and down through generations. As noted by Wadhera, “the... perceived recollection of frequent consumption of foods in childhood was significantly related to current liking for the vast majority of the foods, including nutritious foods such as vegetables.”<sup>3</sup>

Providing nutritious meals to at-risk children is important, but we are able to do so much more. We are helping shape their palates and appreciation for how their food is grown – in a sense, programming their habits for the rest of their lives. The value of that is unquantifiable.

We envision a world where urban farms, especially technologically advanced, extremely productive farms like ours, are actively sought out by urban centers not just as a provider of healthy, fresh, local produce, but as harbingers of good eating habits. When a farm becomes a part of a community as we have, the community loyalty can run deep and the knock-on effects for health and wellness can be deep and lasting.

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**“We envision a world where urban farms act as harbingers of good eating habits”**  
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Baby mixed greens grown by AeroFarms

# Strengthening Community-Based Nutrition Programs with Mobile Technology

## Sanchay Gupta

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### Key messages

- > Malnutrition is responsible for at least three million deaths every year.
- > Access to health and nutrition services remains a huge challenge globally, particularly in rural settings and for people living in poverty.
- > Community Health Workers (CHWs) can help alleviate overstretched health systems, yet they face many significant challenges in coordinating care.
- > Medic Mobile was created for people delivering care in hard-to-reach areas, with a mission to use mobile technology to create connected health systems that save lives.
- > Through continued and deliberate cross-sector collaboration, the successes we are seeing can be replicated and can ultimately transform the lives of millions.

### A glimpse from the field

Ng'ang'a clocks in to his shift on a busy morning at Angata Clinic. His first patient is a two-year-old girl from a village in Western Kenya. Hannah had been suffering from repeated bouts of diarrhea, and after weeks of contemplating the social and financial risks, her mother has decided to make the arduous four-hour journey to the clinic. Hannah's feet look swollen and her movements are weak and listless. To determine her nutritional status, the staff measures the circumference of her upper arm: 100 mm.

Hannah has severe acute malnutrition, a condition that if left untreated can be fatal.

Malnutrition is responsible for at least three million deaths every year, and carries a very poor prognosis in places like the one where Hannah comes from.<sup>1</sup> But Hannah's case is an exception. After visiting the nutritionist, she is sent home with oral rehydration salts and twenty packets of Ready-to-Use Therapeutic Foods (RUTF). With regular consumption of Plumpy'Nut® and weekly follow-up visits by a Community Health Worker (CHW), she eventually makes a complete recovery.

### CHWs deliver hope and health

Access to health and nutrition services remains a huge challenge globally, particularly in rural settings and for people living in poverty. Last year, 50 million children had acute malnutrition, according to UNICEF estimates, and 23.2% of children under five had stunted growth.<sup>2</sup> In many places, CHWs form the backbone of the way care is delivered, from coordinating antenatal care for pregnant mothers to organizing immunization campaigns targeting children. The popularity of CHW-centric nutrition programs like Community-based Management of Acute Malnutrition (CMAM) reflects an understanding that a shift towards community-based care is necessary to widen coverage, save time and resources for families, and improve outcomes.<sup>3</sup>

CHWs with basic training can help alleviate overstretched health systems by going door-to-door to engage in health promotion and check in with patients. And yet, they face many significant challenges in coordinating care: They may not know who needs emergency care in their community or remember which kids are due for clinic follow-ups.

“In many places, Community Health Workers form the backbone of the way care is delivered”



© Enoch Musyoka

Mothers gather with their infants at a CHW-led community growth-monitoring outreach event in rural Malawi

### We are Medic Mobile

Medic Mobile was created for people delivering care in hard-to-reach areas, supporting over 14,000 CHWs and 8 million people in 23 countries. Our mission is to use mobile technology to create connected health systems that save lives. Our tools work with or without internet connectivity, on devices ranging from basic US\$10 phones to smartphones and computers. Health workers can use Medic Mobile to register every pregnancy in their communities, track disease outbreaks faster, and keep stock of essential medicines. We are now extending this toolkit to support the provision of community-based nutrition services. Below, we discuss some of the things we have learned during this process.

### Learning with Children in Crisis

Our nutrition efforts began through a partnership with Children in Crisis, an initiative at Stanford University aiming to improve the identification and treatment of malnutrition in rural Guatemala. Each month, the health promoters of Children in Crisis conduct growth-monitoring outreaches in the 19 indigenous communities surrounding San Lucas Tolimán. Originally, these *Promotoras* would measure the height and weight of children, plot the measurements on paper graphs, and then extrapolate z-scores for WAZ, HAZ and WHZ. Children who developed worrying patterns or trends were enrolled in a supplementation program, and those who did not attend the outreach were visited at home.

It was clear that these frontline health workers were effective change agents in managing malnutrition. However, delivering this care accurately and consistently were identified as pain points: Plotting growth charts by hand introduced errors that were resulting in misclassifications, and interviews with *Promotoras* revealed that synthesizing visit data into actionable recommendations was challenging.

Medic Mobile was interested in providing mobile decision support tools to these CHWs. Together, we designed and deployed a SIM application that allows CHWs to perform nutrition assessments in resource-poor and low-infrastructure areas. We achieved this by pioneering the use of a parallel SIM card that sits underneath an ordinary SIM and can load custom forms onto basic phones. The *Promotoras* simply enter each child's height, weight, gender, and date of birth and are presented with z-scores for WAZ, HAZ and WHZ as per the World Health Organization (WHO) z-score reference tables.<sup>4</sup> The calculations occur offline, and present results immediately while the child and caregiver are still present, encouraging appropriate counseling with the child's family.

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**“We have been working tirelessly to support equity-enhancing nutrition interventions across our entire toolkit”**



© Lewis Feuer

A female Community Health Volunteer in Nepal uses Medic Mobile to coordinate care for pregnant women and children





© Dianna Kane

A health promoter from Children in Crisis describes some of the challenges she faces in delivering nutrition services to families

### Key opportunities

Since then, we have been working tirelessly to support equity-enhancing nutrition interventions across our entire toolkit. With strategic partnerships in Africa, Asia, and Latin America, we are designing for a variety of programmatic approaches, ranging from CMAM to Integrated Community Case Management. Below are some of the unique and exciting opportunities we have pursued.

### Behavior change communication

Promotion is an important step towards empowering families to take control of their health. Our tools prompt CHWs to reinforce key nutrition messages starting from pregnancy and throughout the child's first 1,000 days. We accomplish this by integrating nutrition messages across health services, such as antenatal care and immunizations. For example, when Living Goods CHWs use our mobile App to treat children for diarrhea, malaria and pneumonia, they are also presented with feeding recommendations for sick children to help educate families about optimal feeding during and after illness. Our platform's ability to flexibly accommodate mobile SMS and voice content means that partners can tailor this messaging to local needs.

### Screening and case-finding

Medic Mobile helps CHWs proactively identify at-risk and malnourished kids by reminding them to regularly visit households for growth and health monitoring checkups: Muso's CHWs in Mali

are meeting with families as often as twice a month to search for patients and connect them with care early. If a child is identified with moderate acute malnutrition (MAM), he or she can be treated immediately at the doorstep with supplementary foods. Our tools support assessments of children's WAZ, HAZ, WHZ and mid-upper arm circumference (MUAC), and provide decision-making support in terms of counseling, referral, and treatment.

### Patient tracing

After pregnant mothers and children are registered in our system, Medic Mobile notifies health workers of upcoming clinic appointments as well as important micronutrient and medicine distribution dates, reducing defaulter rates and ensuring that families have everything they need to stay healthy.

### Service and stock monitoring

Collecting real-time data on service statistics and supply of food supplements and micronutrients can strengthen service delivery. Nutritionists at International Medical Corps in Kenya, for instance, are using Medic Mobile for routine stock reporting of food commodities. This data can be aggregated and displayed on easy-to-read dashboards, providing information to managers that can be used to restock supplies more quickly (often from nearby clinics) and improve forecasting so as to meet future demands.

### Looking ahead

We see a clear path forward for donors, policy-makers, and im-



© Amanda Yimbrick

Promotoras in Guatemala learn how to record anthropometric data and perform z-score calculations using their personal phones



© Courtesy of VMware

A CHW visits families from his village in Uganda to provide health education and search for new patients

plementers to make tangible progress in the fight against malnutrition. First, more investments in the scale-up and management of CHW programs are needed, which we know can affordably expand access to health and nutrition services.<sup>5</sup> CHW programs can further sharpen their impact by adopting smart technologies that are designed for health workers who are providing care in last-mile settings. Finally, there is a significant opportunity in the integration of nutrition with other community-based health services. Through continued and deliberate cross-sector collaboration, we believe that the successes we are seeing can be replicated and can ultimately transform the lives of millions.

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# Applying Consumer Research to Microfranchising in South Africa

## Taurai Nyakunu

Sizanani Mzanzi, Johannesburg, South Africa

## Monique Tredoux

DSM Nutritional Products, Johannesburg, South Africa

### Key messages

- > South Africa faces two critical public health issues: the double burden of malnutrition and micronutrient malnutrition.
- > One way of combating this is by promoting fortified versions of affordable foods.
- > Sizanani Mzanzi promotes a social microfranchising business that empowers people in South Africa and improves their quality of life.
- > Sizanani Mzanzi applied consumer research to the microfranchising business model, using shopping, food diaries and in-depth interviews to generate consumer insights that can be used to positively shape the market for affordable, fortified foods in Soweto, South Africa.

### A glimpse from the field

South Africa faces two critical public health issues: the double burden of malnutrition and micronutrient malnutrition. The double burden is when undernourished and overnourished individuals live in the same community or household. Nearly a third of South African children are undernourished, while more than 50 per cent of adults in South Africa are overweight or obese, and vitamin A and iron deficiency remain a public health problem in South Africa.<sup>1</sup> There are various approaches to address the issue of micronutrient malnutrition. We can, for instance,

promote the consumption of nutrient-dense foods such as fruits, vegetables, and animal-source foods; however, these products tend to be expensive and unaffordable to low-income families. Another approach is by promoting affordable, fortified foods that are commonly consumed.

As reported in issue 1/2015 of this magazine, Sizanani Mzanzi (Zulu for “Help each other South Africa”) was founded in 2014 by *Sight and Life* and DSM South Africa. The organization is dedicated to improving South Africans’ access to quality, affordable social goods. It does this by developing social microfranchising businesses that empower people to achieve a better quality of life. After a successful six-month program, Sizanani Mzanzi introduced two fortified products to the market: a flavored instant porridge and a flavored, powdered beverage for retail distribution via the microfranchising model.



The Sizanani Mzanzi logo

### The microfranchising business model

Microfranchising is defined as a business model that applies elements and concepts of traditional franchising to small businesses or individual entrepreneurs in resource-poor contexts. It refers to the systemization and replication of microenterprises and to the provision of public health goods and services in low-income areas where access is poor, prices are inflated and counterfeiting is rampant.<sup>2</sup> As such, Sizanani Mzanzi recruits community-based entrepreneurs from low-income areas and equips the microfranchisees with basic training in nutrition and





Examples of MixMe products

sales techniques to allow them to engage in door-to-door sales. Other similar market-based approaches for selling nutritious foods show that the door-to-door delivery model is an effective way of building demand and customer loyalty in densely populated communities.<sup>2</sup> From launching its initial activity in Ivory Park, a township in Gauteng, South Africa, Sizanani Mzanzi has expanded its coverage to include Orlando West, Soweto, and, most recently Westbury – serving a potential combined population of close to a million residents.

“Sizanani Mzanzi now serves a potential combined population of close to a million residents”

As Sizanani Mzanzi aims to grow the number of microfranchisees it supports, we realized that the brand and nutrition action messages needed further work to stimulate consumers to buy and use our products. We therefore set out to conduct qualitative consumer research with a view to creating a value proposition for our current and potential porridge and beverage consumer market – one that is relevant to their needs and preferences, and their buying and consumption habits. In November 2016, Sizanani Mzanzi engaged the services of a consumer research company to further understand the consumer with regard to the purchase and use of instant porridge and beverages. The

results and recommendations from the research will enable us to build a strong brand and value proposition for our products.

**Consumer research**

Consumer research is used to capture consumer behaviors and preferences.<sup>3</sup> For Sizanani Mzanzi, there were two objectives that needed to be addressed through consumer research. The first was to ascertain what were the purchasing habits and shopping experiences for similar product categories. The second was to ascertain what were the consumption patterns and preferences for instant porridge and beverage products.

If any business model is to succeed, it must get the marketing mix right. The marketing mix consists of four elements (known as the four Ps): **1)** the product (i.e., the features, designs, brand and packaging); **2)** the price (the list price, including discounts, allowances, and payment methods); **3)** the place (the distribution of the product through specific store and non-store outlets); and **4)** promotion (advertising, sales promotion and personal selling efforts designed to build awareness of, and demand for, the goods). Robust consumer research will provide answers to the design of the marketing mix. In-depth consumer research was critical to help Sizanani Mzanzi microfranchisees to succeed in selling new fortified products via door-to-door sales.

“The challenge for Sizanani Mzanzi is to introduce a new product to the market via door-to-door sales”



The latest product packaging for MixMe porridge

### Applying consumer research methods to microfranchising

South African consumers buy their preferred brands at grocery stores. The challenge for Sizanani Mzansi is to introduce a new product to the market via door-to-door sales. We chose three methods that would provide further insights into the “shopping and consumption experience:” **an accompanied shopping tour, a five-day food diary, and in-depth interviews.** Using all three methods with the same respondent builds trust and rapport that can lead to deeper insights as well as triangulation of the data.

Stringent inclusion criteria were applied to select 25 respondents living in Soweto for this research. Respondents selected were all women aged between 24 and 60. They were economically active buyers, representing a broad spread of income and working status. The women needed to be active monthly buyers of porridge, instant cereal, and beverages.

A **shopping tour** is useful for capturing consumer behavior in-store. The consumer is accompanied by trained market research staff who observe how the consumer responds to in-store triggers and interactions with products, such as reading labels and comparing products. Further insights are obtained through a shopping trip exit interview. Shopping tours provide immediate informant-driven experiences at the point of purchase. This results in a high degree of credibility of the generated data and allows for insights into actual shopping activities rather than from recollections of shopping experiences.<sup>4</sup> An accompanied shopping trip included an exit interview.

The **food diary tool** is used to track meal patterns and consumption of porridge and beverage products over the course of five days. Unlike food diaries used for nutrition intake studies, this food diary does not collect detailed dietary intake data. Information gathered from the diary is the basis for subsequent discussion during an in-depth interview. Self-completion food diaries have a number of advantages over other data collection methods.<sup>4</sup> Diaries can **1)** provide a reliable alternative to the traditional interview method for events that are difficult to recall accurately or that are easily forgotten, such as who was present at meal times, and what factors influenced meal preparation; and **2)** be used to supplement interview data so as to provide a rich source of information on respondents’ behavior and experiences on a daily basis. Participants in the research were required to maintain a five-day food diary of their household food consumption. On the third day, they received Sizanani Mzansi’s products, which were to be included in their meal plans on the fourth and fifth day. Feedback on the suitability of the products would be garnered via the in-depth interview.

**In-depth interviews** are carried out at the participant’s home, so that a rapport can be created with respondents. They last sixty minutes. Interpreting body language improves the researcher’s understanding of the answers given. The inter-

view is a guided conversation based on a carefully constructed discussion guide which facilitates respondent’s views through open-ended questioning.

### Shaping the market for affordable fortified foods

In summary, we have used shopping tours to help us understand the factors that drive the shopping experience and how shoppers segment and define the targeted category. The **food diary**, on the other hand, offers insights into eating patterns concerning the food products under review. The combined data is useful to help guide brand positioning, create brand value, inform marketing messages, develop relevant marketing materials (flyers, events) and tactics (i.e., promotional offers or sales incentives) – all measures that can positively shape the market for affordable, fortified foods in Soweto, South Africa.

### Acknowledgements

We would like to acknowledge the generous support of *Sight and Life* Foundation for research design; Sizanani Mzansi and DSM Nutritional Products for research support; and BMi Research for implementation.

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# School-Based Strategies for Nutrition, Water, Sanitation and Hygiene (NWASH)

## Eva Monterrosa

Senior Scientific Manager, *Sight and Life* Foundation

## Arvind Betigeri

Project Manager, Rice Fortification, PATH

### Location

> Karnataka, India

### Setting

> 2,316 schools in three districts in Karnataka

### Target audience

> Students from grades 1–10; 450,000 children

### Duration

> March 2015–December 2016

## Project context

The nutritional status of school-going children is influenced by their intake of nutrients but also by any nutrient losses resulting from infectious diseases they may be carrying. “Feed the Future Through Fortified Rice” uses two strategies to improve nutritional status among school-going children: **1)** provide missing nutrients through fortified rice served at lunch meals, and **2)** prevent nutrient losses through deworming and WASH education at schools.

In collaboration with our project partners, *Sight and Life* provided technical leadership in nutrition and WASH education at schools.

## Partners and our roles and responsibilities

**PATH** Project leadership along with technical expertise in rice fortification, monitoring and evaluation.

### *Sight and Life*

Technical expertise in behavior intervention, working in partnership with PATH and Karuna Trust to design this component.

### Akshaya Patra

Provision of a hot, midday meal containing fortified rice.

### Karuna Trust

Support to Akshaya Patra in implementing the nutrition and WASH intervention as well as administration of deworming tablets at the school. Karuna Trust trains teachers and helps schools take ownership of the intervention.

## Goal

To motivate and persuade children to engage in healthy eating and washing their hands with soap, as well as safe water use and good sanitation practices.

## Project outcomes

This project aims to influence behaviors, attitudes, and motivations for:

- ✓ Washing hands with soap before meals, after toilet use, after play, and after handling garbage;
- ✓ Drinking water only from safe sources;
- ✓ Using the toilet (no open defecation or urination);
- ✓ Flushing the toilet with water after use;
- ✓ Keeping school tidy and free of garbage; and
- ✓ Eating vegetables and healthy snacks (fruit and milk).

## Project Description

The intervention was developed in three phases over a period of 18 months.

### Phase 1: Exploratory phase

This phase lasted a week and was used to establish a basic understanding of the physical, social/normative, and biological factors that were driving eating and hygiene practices at school.



TABLE 1: Intervention summary

	Objective	Intervention	Description	Grades
1	Create hygiene habits	Peer role models & cues to action (situational cues)	Modeling behavior. Rhymes and short messages are delivered by peer models. Attractive signs and essential tools for toilet use and hand-washing placed at key spots to remind children of the behaviors.	1–8
2	Create positive attitudes (via positive experiences) to sanitation and good nutrition	Games (learn by having fun)	Ten games on topics that deal with nutrition and WASH.	1–5
		Helper crews	Helper crew teams keep the school tidy. Cleanliness chart tracks how well teams are meeting their cleanliness goals.	3–5
3	Leadership and local solutions to improve sanitation and healthy eating	Problem-based learning	Students work in teams to solve issues that are a barrier to reaching good WASH and healthy-eating habits.	6–8



© Eva Monterrosa

Karuna Trust Facilitators, Dharwad District, Karnataka, November 2015



Cleanliness chart used with Strategy 2 of the WASH and nutrition intervention

**Phase 2: Formative phase**

Drawing on the initial phase and review of the literature, we developed an ethnographic study that explored hygiene and sanitation through the lens of “cleanliness” in school environments. To examine eating practices, we explored the children’s preferences for, and attitudes towards, foods available during school hours – vegetables as part of the midday meal, milk, and snacks. We also looked at social influence in more detail to understand to what extent peers could facilitate or inhibit healthy behaviors. We interviewed children aged 10 and above. We conducted in-depth interviews, using methods such as card sort, attitude scales, and open-ended questions. In our focus group discussions (FGD) with the students, we used ranking and scoring activities to uncover situational and behavioral cues, and students’ expectations regarding cleanliness. In addition, we conducted separate FGDs with parents and teachers to understand their expectations regarding healthy eating and WASH.

**Phase 3: Design and implementation pilot**

Drawing on the insights from the formative phase, we developed three strategies to cover the various developmental phases of children ages 6–15. Taken together, the strategies aim to create positive experiences and to motivate children through situational cues, play, and peer modeling.

Each of these strategies was vetted by Karnataka teachers via FGD and was then further refined in workshops. Once the design elements and key components for each strategy had been agreed upon, an implementation pilot was implemented in 52 schools over eight weeks during the first quarter of 2016.

Feedback from this pilot resulted in further refinement of the program design and implementation plan.

**Evaluation of implementation and outcomes**

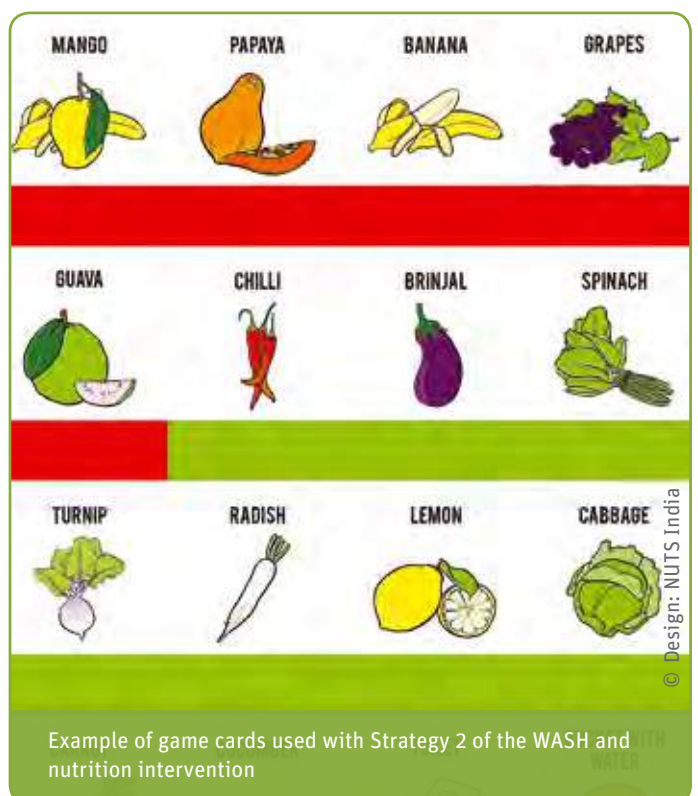
As of November 1, 2016, the nutrition and WASH intervention is being implemented in three districts: Dharwad, Bellary and Bangalore. PATH is responsible for managing an independent outcome evaluation of the overall project in these three districts, with the aim of determining the effect of fortified rice on school performance and of the nutrition and WASH intervention on attitudes and behaviors.

**Acknowledgements.**

We would like to give special acknowledgement to the Karuna Trust Facilitators for training the teachers and for facilitating the adoption and uptake of the interventions in the schools. In particular, we thank the Karuna Trust Project Coordinators Manoj Puttur and Anusha Purushotham for leading the facilitators in this task.

Additionally, *Sight and Life* would like to thank Ms Laura Wentzel, our *Sight and Life* intern in 2015, who supported phases 1 and 2 of this project.

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Example of game cards used with Strategy 2 of the WASH and nutrition intervention

**Did you know?** You can now visit the *Sight and Life* website [www.sightandlife.org](http://www.sightandlife.org) on a regular basis to get the latest news about what is happening in the field of nutrition. You can also follow us on **Facebook** and **Twitter @sightandlife**.

## WHO Guideline: Use of Multiple Micronutrient Powders for Point-Of-Use Fortification of Foods Consumed by Infants and Young Children Aged 6–23 Months and Children Aged 2–12 Years



This guideline supersedes and is an update of the 2011 WHO guideline “Use of multiple micronutrient powders for home fortification of foods consumed by infants and children 6–23 months of age.”

Compared to the previous guidelines, this one uses the word “point-of-use” instead of “home” to reflect the variety of settings where this intervention may take place. The population groups covered have been expanded to include preschool and school-age children aged 2–12 years.

The guideline was developed to guide Member States and their partners in their efforts to make evidence-informed decisions on the appropriate nutrition actions to improve the nutritional status of infants and children aged 6 months

to 12 years. The guideline is intended for a wide audience, including governments, non-governmental organizations, healthcare workers, scientists and donors involved in the design and implementation of micronutrient programs and their integration into national and subnational public health strategies and programs. The use of multiple micronutrient powders (MNP) for point-of-use fortification of foods has been suggested as an alternative to mitigate or overcome the constraints associated with supplementation and mass fortification.

**“The guideline is intended for a wide audience, including governments, non-governmental organizations, healthcare workers, scientists and donors involved in the design and implementation of micronutrient programs and their integration into national and subnational public health strategies and programs”**

**The two key recommendations are:**

- In populations where anemia is a public health problem, point-of-use fortification of complementary foods with iron-containing MNP in infants and young children aged



6–23 months is recommended, to improve iron status and reduce anemia.

- > In populations where anemia is a public health problem, point-of-use fortification of foods with iron-containing MNPs in children aged 2–12 years is recommended, to improve iron status and reduce anemia.

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**The executive summary of the report can be downloaded from:** [www.who.int/nutrition/publications/micronutrients/guidelines/mpowders-infant-children-executivesummary.pdf](http://www.who.int/nutrition/publications/micronutrients/guidelines/mpowders-infant-children-executivesummary.pdf).

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## Did You Know?

- > The Home Fortification Technical Advisory Group (HF-TAG) is a global network of stakeholders engaged in home fortification. Its mission is to provide leadership by advocating and supporting well-designed and effective home fortification interventions at scale for children and women, based on sound technical guidance and best practices. **Learn more about HF-TAG through their website:** [bit.ly/2mCOjnh](http://bit.ly/2mCOjnh)
- > HF-TAG has released a revision to its MNP Toolkit, which covers planning, policy development, program manage-

ment, procurement, supply and distribution, behavior change interventions and monitoring in respect of MNP programs, providing checklists, guidance, and resources.

**The toolkit can be downloaded from:** [www.hftag.org/downloads.asp?s=hftag&c=Toolkit](http://www.hftag.org/downloads.asp?s=hftag&c=Toolkit)

- > As a co-founder and member of HF-TAG, *Sight and Life* has played an important role in the development of a 15-micronutrient formulation for MNPs and has supported HF-TAG with the quality manual for MNP and provided technical support to MNP programs.

## Better Business, Better World



This leading report is a call to action for business leaders and makes a compelling case as to why businesses should pursue growth in line with the Sustainable Development Goals. Although the report does not explicitly refer to nutrition, it does lay out the top market opportunity areas in the domain of food and agriculture, of which four out of ten are related to nutrition, namely: reducing food waste in the value chain; developing [healthy] food markets for the low-income consumer; reducing consumer food waste; and product reformulation. **The report recommends six actions that business leaders need to apply to appreciate these opportunities:**

01. Build support for the Global Goals as the right growth strategy in their companies and across the business community

- 02. Incorporate the Global Goals into company strategy
- 03. Drive the transformation to sustainable markets with sector peers
- 04. Work with policy-makers to pay the true cost of natural and human resources
- 05. Push for a financial system oriented towards longer-term sustainable investment and
- 06. Rebuild the Social Contract.

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**“Achieving the Global Goals opens up market opportunities in food and agriculture, cities, energy and materials, as well as health and wellbeing”**

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**An excellent reference work for those seeking sustainable partnerships, this stimulating publication can be downloaded from:** [report.businesscommission.org/uploads/BetterBiz-BetterWorld.pdf](http://report.businesscommission.org/uploads/BetterBiz-BetterWorld.pdf)

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## Did You Know?

- > The Business and Sustainable Development Commission was launched in Davos, Switzerland, in January 2016. It brings together leaders from business, finance, civil society, labor, and international organizations, with the twin aims of mapping the economic prize that could be available to business if the UN Sustainable Development Goals are achieved, and describing how business can contribute to delivering these goals.
- > The new website [www.InvestInNutrition.org](http://www.InvestInNutrition.org), was launched by Results for Development (R4D) together with the World Bank and 1,000 Days. It provides financing scenarios for the required investment of US\$70 billion above current spending over the next ten years, and its data and images can be used as a powerful advocacy tool for financing in nutrition.
- > *Investing in nutrition* is a great resource with excellent visuals that summarizes the investments necessary for achieving World Health Assembly 2025 global targets to improve nutrition, and outlines how governments, donors, the private sector, foundations, and others can come together to finance nutrition actions at scale.  
**Read it here:** [bit.ly/2b8r1Ma](http://bit.ly/2b8r1Ma)

## Compendium of Indicators for Nutrition-Sensitive Agriculture



health are long and differ significantly between regions, socioeconomic groups, and within households. As such, it is important to identify ways to measure what difference “nutrition-sensitive” interventions are making and how these can be improved. The compendium aims to support those responsible for designing nutrition-sensitive food and agricultural investments to select appropriate indicators to measure whether, and if so via which pathways, investments are contributing to improved nutrition. It features a list of indicators, including a description of what each indicator measures, when it is relevant and how data is collected and analyzed, along with related technical resources.

A PDF file of the publication can be downloaded at: [www.fao.org/3/a-i6275e.pdf](http://www.fao.org/3/a-i6275e.pdf).

“There is no magic recipe for multisectoral action. Nutrition-specific and nutrition-sensitive programs, together with changes in the underlying determinants and the enabling environment, all have important roles to play. When they come together in a virtuous circle, they can lead to significant improvements in people’s nutrition status.”

*Global Nutrition Report, 2014*

Evidence suggests that the health sector will only make up 20% of the efforts needed to reduce the burden of malnutrition by means of nutrition-specific interventions. Reducing sustained rates of malnutrition requires joint action between the health, agriculture, social protection, and education sectors.

While these sectors clearly must collaborate, the impact pathways from production, social protection and natural resource management to dietary intake, care practices and

### Did You Know?

- > “Improving Nutrition through Agriculture and Food Systems” is a new e-course illustrating the linkages between agriculture, food systems and nutrition. It describes the benefits of, and opportunities for, integrating nutrition into food system policies, investments and programs. It also provides a series of examples of nutrition-sensitive policies and interventions, as well as an overview of the main initiatives and commitments on nutrition on which learners can build to integrate nutrition into their work.

**Interested in taking the course?**

**Go to:** [www.fao.org/elearning/#/elc/en/course/NFS](http://www.fao.org/elearning/#/elc/en/course/NFS)

- > Does agriculture improve nutrition? The factsheet on “The Role of Agriculture: Producing Food to Nourish People?” developed by Generation Nutrition looks beyond basic assumptions to examine ways in which agriculture affects nutritional status. It is part of a series exploring ways of preventing child undernutrition.

**Look it up here:** [bit.ly/2iuWhbD](http://bit.ly/2iuWhbD)



## WASH' Nutrition: A Practical Guidebook on Increasing Nutritional Impact Through Integration of WASH and Nutrition Programs



“Addressing undernutrition and meeting the 2025 Global Nutrition Targets will require a multisectoral approach with a strengthened focus on improving WASH [...] No child ought to suffer from undernutrition, and through smart, targeted joint action on WASH and nutrition, millions of deaths can be prevented”

*Zita Weise Prinzo, Nutrition for Health and Development, WHO, and Margaret Montgomery, Water, Sanitation and Hygiene, WHO*

*WASH' Nutrition* is an outstanding resource for implementers who are thirsty for practical guidance on the integration of WASH and nutrition at the field level. This comprehensive guidebook launched by *Action Contre la Faim* not only encourages the design of new integrated projects but also provides

support for reinforcing existing integrated interventions, and gives much room for context-based design and implementation.

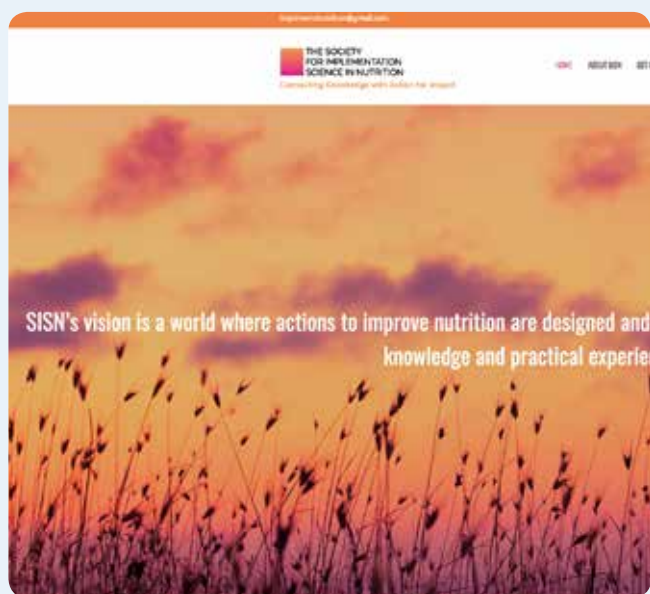
The report describes the practical implementation of integrated activities at different levels (household, community, national) and in different settings (schools, nutrition and health centers). It also puts forward a framework for monitoring and evaluation with related indicators, and covers advocacy for WASH and nutrition integration, capacity-building and communication. A collection of examples and practical tools extrapolated from case studies is available at the end of the report to help with integration efforts.

The report can be accessed at [bit.ly/2nU7to0](http://bit.ly/2nU7to0)

### Did You Know?

- Studies in The Gambia have shown that > 40% of stunting can be attributed to environmental enteric dysfunction (EED) – i.e., chronic exposure to pathogenic bacteria, viruses, and parasites due to poor hygiene, contaminated water and open defecation. EED can be avoided or reduced through a set of WASH interventions.
- Two relevant articles in *Sight and Life* 2/2013 and 1/2016 address this topic. Read the editorial on “The Stunting Enigma” and the commentary entitled “Making Stunting a Development Indicator” here via the following two links:
  - [www.sightandlife.org/fileadmin/data/Magazine/2013/27\\_2\\_2013/Commentary\\_The\\_Stunting\\_Enigma.pdf](http://www.sightandlife.org/fileadmin/data/Magazine/2013/27_2_2013/Commentary_The_Stunting_Enigma.pdf)
  - [www.sightandlife.org/fileadmin/data/Magazine/2016/Mag1/Making\\_Stunting\\_a\\_Development\\_Indicator.pdf](http://www.sightandlife.org/fileadmin/data/Magazine/2016/Mag1/Making_Stunting_a_Development_Indicator.pdf)

## The Society for Implementation Science in Nutrition (SISN): New website and open membership



We are delighted to inform you that SISN's new website is now live and open to membership.

**You can apply through:** [www.implementnutrition.org/get-involved/#\\_howtoapply](http://www.implementnutrition.org/get-involved/#_howtoapply).

From now on, the site will be a key hub for SISN's communications activities. In addition to expanded information on the Society's vision, mission, goals and governance, it also includes a dedicated section for blogs.

Throughout 2017, SISN will be adding resources, such as frameworks, toolkits, webinars, papers and other key documents of interest, some of which will be available to members only. If you are not already a member, you can apply via the website.

**“SISN's vision is a world where actions to improve nutrition are designed and implemented with the best available scientific knowledge and practical experience”**

By joining SISN, you are becoming part of a global community dedicated to improving nutrition implementation worldwide. You will also benefit from being kept abreast of developments in the sector and from opportunities to enhance your professional profile and networks. We also have opportunities for members to become more directly involved in supporting the Society's goals.

**To find out more, please visit:**

[www.implementnutrition.org/volunteer/](http://www.implementnutrition.org/volunteer/).

**Follow the Society on:**

Twitter – @implementnutri

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### Did You Know?

- > The Society for Implementation Science in Nutrition was launched in 2016 to facilitate the vital collaboration needed between all stakeholders in nutrition implementation and to pool the collective knowledge, experience, resources and commitments of scientists and practitioners to take on the challenge of scaling up nutrition globally.
- > SISN's mission is to convene, advocate, disseminate and promote dialogue among scientists, policy leaders, government officials, funders and practitioners to advance the science and practice of nutrition implementation worldwide.
- > SISN openly invites membership from all implementation-related disciplines, including academia and research, government, implementers, donors, foundations and members of civil society and the private sector.

# The 2017 Global Food Policy Report



“In 2017, the world must move forward with its commitments on the SDGs. Working to improve food systems and strengthening the ties between rural and urban areas offer great promise for meeting those goals and ending hunger and malnutrition.”

*Shenggen Fan, Director General IFPRI*

IFPRI's flagship report reviews the major food policy issues, developments, and decisions of 2016, and highlights challenges and opportunities for 2017 at the global and regional levels. The 2017 Global Food Policy Report provides a comprehensive overview of major food policy developments and events. In this sixth edition, leading researchers, practitioners and policy-makers look back at what happened regionally and globally in food policy in 2016 and why, and reflect on what to expect in the coming year. This year's report focuses on the challenges and opportunities brought about by rapid urbanization for nutrition and food security, especially in low- and middle-income countries (LMICs).

Drawing on recent research, IFPRI researchers and other distinguished food policy experts consider a range of timely questions:

- > What do we know about the impact of urbanization on hunger and nutrition?
- > What are our greatest research and data needs for better policy-making that will ensure food security and improve diets for growing urban populations?
- > How can we better connect rural smallholders to urban food consumers so as to ensure that smallholders benefit from expanding urban food markets?
- > Why do city environments drive a nutrition transition toward poorer diets, and what policies can improve the nutrition environment?
- > How are urban areas reshaping agricultural value chains for staple crops and benefiting small farmers?
- > What role do informal markets play in feeding cities, and how can they be better governed to increase urban food security?

The online version of the report also provides a very helpful tool to compare performance across multiple indicators and countries across the globe. The tool includes a variety of data sets, including data on investments in agricultural research; public spending in agriculture; food policy research capacity; international model for policy analysis of agricultural commodities and trade; and agricultural total factor productivity, as well as a hunger index at the country level. [Have a look at the widget here: www.tellmaps.com/ifpri/embed2.jsp](http://www.tellmaps.com/ifpri/embed2.jsp).

The report can be downloaded here: [ebrary.ifpri.org/utils/getfile/collection/p15738coll2/id/131085/filename/131296.pdf](http://ebrary.ifpri.org/utils/getfile/collection/p15738coll2/id/131085/filename/131296.pdf)

## Did You Know?

- > Look for the hashtag #GFPR2017 on Facebook and Twitter to stay abreast of the latest news regarding the report.



## HarvestPlus Semi-Finalist – Eliminating Hidden Hunger in Africa by Fortifying Staple Crops

“The process of innovation has been most successful when driven by public health need. Whether in reference to new technologies, transformative methods of cultivation, or simple system processes, innovations that are grounded firmly in the contextual realities of the populations which they aim to serve stand the greatest chance of successful scale-up.”

*The Road to Good Nutrition, Karger, 2013*

HarvestPlus is one of eight semi-finalists proposing bold solutions to critical social problems in 100 & Change, a global competition for a single US\$100 million grant from MacArthur. The proposed solutions address challenges ranging from educating children displaced by conflict to eliminating needless blindness across various countries of the globe. The five finalists, who will be selected in September by MacArthur’s Board, will present their proposals during a live event on December 11, 2017. The winner will then be selected and receive US\$100 million over up to six years.

HarvestPlus’s proposed solution will expand on “biofortification”, an innovation developed by the organization’s founder, Howarth Bouis. With 20 million people already growing crops biofortified with vitamin A, iron, and zinc, HarvestPlus intends to scale up the introduction of these varieties in Africa through three existing “hub countries”, namely Nigeria, Uganda and Zambia. The expansion is expected to reach one billion people by 2030, allowing numerous African countries to become nutritionally self-sufficient and paving the way to further develop and extend this work at a global scale.

### Did You Know?

- > Along with colleagues from the International Potato Center (CIP), Howarth Bouis was awarded the 2016 World Food Prize for his pioneering work in ending global hidden hunger through biofortification. Their work with sweet potato has already improved the health of over 15 million people by reducing hidden hunger.
- > The first systematic review of randomized biofortification efficacy trials was published in April 2017. The article reviews the current evidence on the nutritional impact of iron-biofortified staple crops and reinforces the findings and strength of the existing research. **To download the publication, click here:** [www.sciencedirect.com/science/article/pii/S095816691730006X](http://www.sciencedirect.com/science/article/pii/S095816691730006X)
- > You can read an interesting article in *Sight and Life* 1/2013 on biofortification, entitled “Using Plant Foods Rich in  $\beta$ -Carotene to Combat Vitamin A Deficiency”, **here:** [www.sightandlife.org/fileadmin/data/Magazine/2013/27\\_1\\_2013/using\\_plant\\_foods\\_rich\\_in\\_beta\\_carotene\\_to\\_combat\\_VAD.pdf](http://www.sightandlife.org/fileadmin/data/Magazine/2013/27_1_2013/using_plant_foods_rich_in_beta_carotene_to_combat_VAD.pdf)

## Juan Rivera Dommarco, new Director of the National Institute of Public Health (INSP)



On February 16, Dr Juan Rivera Dommarco was elected as the new Director of the National Institute of Public Health (INSP) for the next five years, thereby replacing Dr Mauricio Hernández-Ávila. During his appointment ceremony, Dr Rivera Dommarco stated that he would seek to preserve the legacy of the INSP and face the many challenges of public health. He further invited the entire community to unite and support the interests of health above all else, highlighting that the mission of the institute and the health of Mexicans requires “union, cordiality and collaboration.”

**Dr Rivera Dommarco concluded his message by outlining his goals for the duration of his mandate:**

- › To put the interests of population health first
- › To create an atmosphere of respect, dialogue, transparency and cordiality within the institution’s community
- › To ensure that dialogue with researchers, practitioners and students becomes a common practice
- › To position the INSP as a think-tank of the health system
- › To strengthen the excellence and relevance of research, teaching and service
- › To ensure the generation of economic resources and their transparent and efficient management
- › To support the generational change by supporting the growth trajectory of young researchers and researchers
- › To conduct gender equity management

*Sight and Life sends its best wishes and warm congratulations to Dr Rivera Dommarco.*

### Did You Know?

- › The mission of the INSP is to contribute to social equity and the full realization of the right to health protection through the generation and dissemination of knowledge, state-of-the-art training of human resources, and innovation in multidisciplinary research to design evidence-based public policies. INSP is a leader in public health research and teaching. The Institute INSP strives to generate precise and relevant reference knowledge for the formulation, implementation and evaluation of health research policy for Mexico and in the Latin America Region.

## The *Obaasima* Seal – a Trademark for Quality Fortified Food Products for Ghanaian Women



© Marshall Entertainment Group

**From left to right:** Professor Agyeman Badu Akosa from the National Development Planning Commission (NDPC), Otiko Afisa Djaba, Minister for Gender, Children and Social Protection, and Verena Wiesner, representative of the German Embassy in Ghana, at the launch of the Obaasima campaign at the grand ceremony at the Mövenpick Ambassador Hotel in Accra on February 17, 2017

In February 2017, the *Obaasima* Seal and Campaign was launched in the Brong Ahafo and Northern Region in Ghana, as part of Affordable Nutritious Foods for Women (ANF4W). ANF4W is a development partnership with the private sector that seeks to improve micronutrient intakes of women of reproductive age, particularly during pregnancy and lactation, by increasing the availability of, and access to, new and affordable fortified food products.

As the steering and principal technical partner of ANF4W (implemented by the German Development Cooperation), *Sight and Life* supported the development of the *Obaasima* seal, which was developed as a private-public partnership between the Ghana Standards Authority (GSA) and the Association of Ghana Industries (AGI). The quality seal serves as a certification that the products meet voluntary fortification standards and other nutrition criteria, and most importantly that they encourage women to choose fortified products.

The seal indicates that the product to which it is attached is fortified and has 18 vitamins and minerals that meet the nutritional needs of women.

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**For more information, read the following article – which appeared initially in News Ghana and reports on the launch of the branded marketing campaign – at:** [www.newsghana.com.gh/obaasima-seal-develop-affordable-foods-for-women/](http://www.newsghana.com.gh/obaasima-seal-develop-affordable-foods-for-women/)

### Did You Know?

- *Sight and Life* supported a focused ethnographic study to serve as the foundation for the ANF4W project. The study assessed women's eating habits and beliefs around food. Using these insights, we shortlisted four product concepts and identified why these products would find high acceptability among women. We presented these data, as well as a business case, to local food processing businesses in order to generate interest in a voluntary fortification scheme.
- Need a recap on ANF4W? The previous edition of *Sight and Life* provides one in the article entitled "Improving the Nutritional Status of Women of Reproductive Age", an overview of the project and how this public-private partnership looked at establishing a market-based solution to improve the nutritional status of women of reproductive age with fortified food products. You can download the article here: [www.sightandlife.org/file-admin/data/Magazine/2016/Mag2/Improving\\_the\\_Nutritional\\_Status\\_of\\_Women\\_of\\_Reproductive\\_Age.pdf](http://www.sightandlife.org/file-admin/data/Magazine/2016/Mag2/Improving_the_Nutritional_Status_of_Women_of_Reproductive_Age.pdf).



# Expert Consultation Report on the Framework and Specifications for the Nutritional Composition of a Food Supplement for Pregnant and Lactating Women (PLW) in Undernourished and Low-Income Settings



The Bill & Melinda Gates Foundation organized an expert consultation for the purpose of developing nutrient content targets for affordable, nutritional supplements for use by PLW in low-income and food-insecure contexts. The consultation brought together experts from academia, the public sector, the private sector and the donor community.

#### The objective of the consultation was to:

- > share lessons from the field from varying contexts on the development of a daily nutritious food supplement for PLW;
- > reach a consensus on nutrient content targets and possible types and forms for a daily nutritious food supplement for PLW in low-income and food-insecure settings; and
- > discuss the “use-case” for such products.

The report on this expert consultation captures consensus and considerations on the specifications and framework for macro- and micronutrient composition, form and type, and

use-case for nutritious, ready-to-use food supplements for PLWs who are inadequately nourished, and/or at risk of suboptimal nutrient intake related to food insecurity in low- and middle-income country settings.

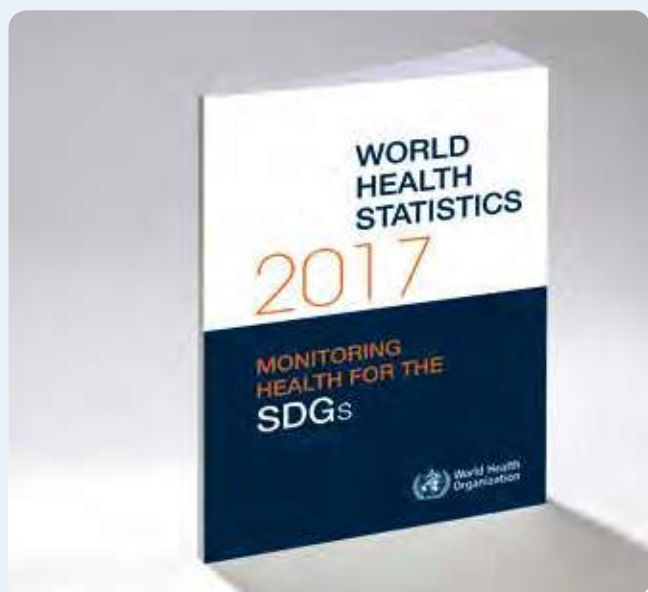
#### You can read the report here:

[www.sightandlife.org/fileadmin/user\\_upload/Expert\\_Consultation\\_on\\_PLW\\_Foods\\_Final\\_formatted.pdf](http://www.sightandlife.org/fileadmin/user_upload/Expert_Consultation_on_PLW_Foods_Final_formatted.pdf)

## Did You Know?

- > Dr Klaus Kraemer, *Sight and Life's* Managing Director, was appointed to the expert panel to discuss these pressing topics surrounding women's nutrition. He comments: “This important and timely document provides a blueprint to develop nutritious foods for women of reproductive age in countries with the highest needs.”
- > This consultation is timely in view of the recent WHO antenatal care recommendations, which appeared in 2016. [For a refresher on the guidelines, click here:](http://apps.who.int/iris/bitstream/10665/250800/1/WHO-RHR-16.12-eng.pdf?ua=1)

## World Health Statistics 2017: Monitoring health for the SDGs



successful efforts by countries to improve and protect the health of their populations through one or more of the six lines of action.

- Finally, Annexes A and B present country-level estimates for selected health-related SDG indicators.

Although the quality of health data has significantly improved over the past few years, many countries still do not routinely collect high-quality data to monitor health-related SDG indicators.

### Progress towards the nutrition-related SDG target is outlined below:

Target 2.2: By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under five years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons:

- 22.9% of children under five were stunted, ranging from 6.1% in the European region to 33.8% in the Southeast Asian region.
- 6.0% of children under five were overweight, ranging from 4.1% in the African region to 12.8% in the European region.

“If countries don’t know what makes people get sick and die, it’s a lot harder to know what to do about it”

*Dr Marie-Paule Kieny*

Produced by the WHO Department of Information, Evidence and Research, of the Health Systems and Innovation Cluster, in collaboration with all relevant WHO technical departments, the *World Health Statistics* report is one of WHO’s annual flagship publications and compiles health statistics for its 194 Member States. This year’s edition brings together a wide range of indicators that are relevant to the Sustainable Development Goals (SDGs). It provides a snapshot of both gains for, and threats to, the health of the world’s population.

### The report is organized in three parts:

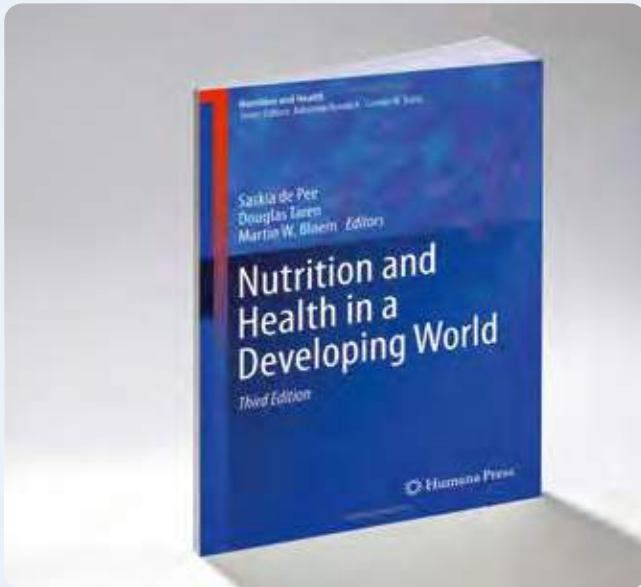
- Part 1 describes six lines of action which WHO is now promoting to help build better systems for health and to achieve the health and health-related SDGs.
- Part 2 summarizes the status of selected health-related SDG indicators at both global and regional level, based on data available as at early 2017.
- Part 3 presents a selection of stories that highlight recent

You can read the report here: [apps.who.int/iris/bitstream/handle/10665/255336/1/9789241565486-eng.pdf?ua=1](https://apps.who.int/iris/bitstream/handle/10665/255336/1/9789241565486-eng.pdf?ua=1)

## Did You Know?

- The World Health Statistics report has been published annually since 2005.
- In February, the world lost a unique statistician – Dr Hans Rosling, a well-known public educator and professor of global health from Sweden who was known for his ability to make statistics come alive.

## 3<sup>rd</sup> Edition of Nutrition and Health in a Developing World



“The third edition of *Nutrition and Health in Developing Countries* takes on a new context whereby the word ‘developing’ is now a verb and not an adjective”

This 827-page book with 36 chapters provides policy makers, nutritionists, students, scientists, and professionals with the most up-to-date knowledge regarding key nutritional and health problems in developing countries. Unlike its two previous editions, this third edition was written against the backdrop of the Sustainable Development Goals and therefore includes new chapters with various topics which well reflect the interconnectedness and complexity of our world. This requires a new approach to public health which includes, but is not limited to: food value chains, challenges to achieving sustainable food systems, urbanization, food insecurity, climate change and political instability.

This third edition reviews the epidemiology, outcome indicators, policies and programs that are used to determine improvements in nutrition and health that lead to development. Programs and policies that address the social and economic determinants of nutrition and health are increasingly gaining in importance as methods to improve the status of the most vulnerable people in the world. This volume is a great resource that policy-makers, nutritionists, students, scientists, and professionals can use to advance methods for improving the health of the world’s population and the development of nations, and to equip themselves to approach health and nutritional problems in a holistic and integrative way.

### Did You Know?

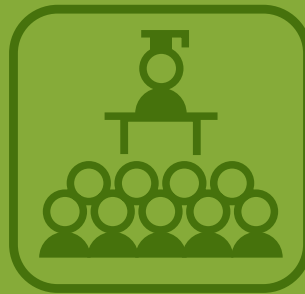
- › *Sight and Life* authored the chapter on ‘The Role of Foundations and Initiatives by the Private Sector for Improving Health and Nutrition’ (pp.771–790).
- › You can order your own copy of the book, or specific chapters from it, here: [www.springer.com/gp/book/9783319437378](http://www.springer.com/gp/book/9783319437378)



# For a world free from malnutrition.

## **mobilize** support

We are dedicated to accelerating the impact of nutrition-focused interventions to improve lives.



*Sight and Life* is a  
nutrition think tank  
supported by DSM



**Editor's note:** This section contains reviews of books, whether brand new or classic, that we hope will be of interest to our readers.

Book Review

## The Good Life: Aspiration, dignity, and the anthropology of wellbeing

**The Good Life: Aspiration, dignity,  
and the anthropology of wellbeing**

**Publisher:** Stanford University Press (October 1, 2014)

**Language:** English

**ISBN-10:** 0804792534

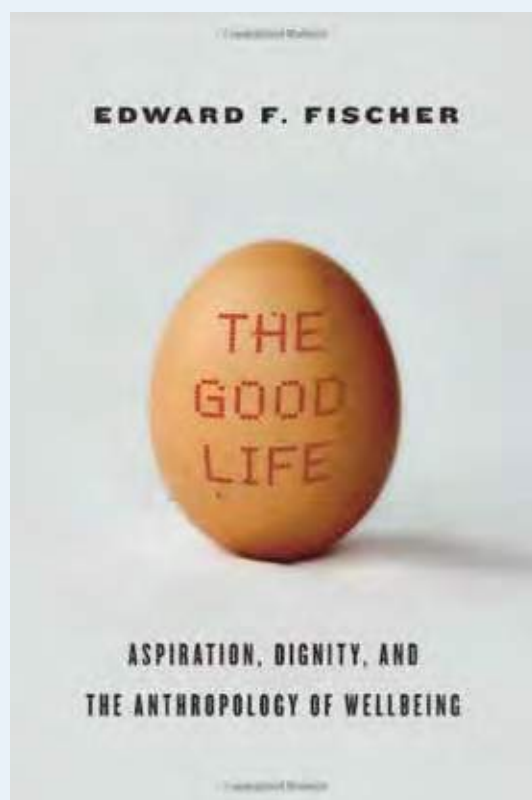
**ISBN-13:** 978-0804792530

It seems that everyone wants the good life. It is the title of a song by Sacha Distel and Jack Reardon made famous in a 1963 recording by Tony Bennett; of a 1970s BBC TV comedy series still watched by aficionados in boxed-set format today; of a 2014 book of photography by Jasper Morrison; of a book of philosophy by Hugh Mackay published in the same year; of a 2015 crime novel by Martina Cole; of a 2016 CD by jazz trumpeter Till Brönner; and of an annual Scottish “festival of music, food, books, ideas, craft, and the great outdoors, for the whole family” – to name but a few. Whatever it is, we certainly all want a piece of it.

Professor of Anthropology and Director of the Center for Latin American Studies at Vanderbilt University, Nashville, TN, USA, Edward F Fischer found his inspiration for the present work in three “a-ha moments” – one in Germany, one in Guatemala and one in Washington DC – each of which demonstrated that the economic ambitions of individuals going about their daily work could be subordinated at will, and happily, to a higher moral purpose. It is this understanding of economic activity as a potentially moral realm, and

not a purely transactional one, that provides Fischer with his main angle of enquiry as he studies decision-making in Germany with respect to eggs and cars and in Guatemala with respect to coffee and broccoli.

Fischer commences with the proposition that “we should understand the ends of economics, as well as politics, to be provisioning the good life as widely as possible for people as they themselves conceive it.” He then draws a distinction between happiness and well-being, pointing out that happiness may be understood either as the ‘hedonic’ happiness of everyday contentment or else as life satisfaction in the broader sense, pointing out that this second meaning is more in line with the Aristotelian ideal of a fulfilled life, *eudaimonia*. It is in terms of this second definition that he analyses his subject, using his perspective as an American to highlight the peculiarities of the very divergent cultures of Germany and Guatemala



as they express themselves through people's day-to-day purchasing habits and work routines.

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## “What price are we willing to pay to be virtuous?”

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Asking “What price are we willing to pay to be virtuous?”, Fischer opens his study with an examination of the moral choices at play when consumers purchase eggs in German supermarkets. He finds a remarkable degree of altruism in the decisions made. “Although rapidly changing, German political economic institutions of co-determination support a particular balance of individual self-interest and collective goods,” he observed. “Such stakeholding can be seen both in national policy and in consumer behavior. German consumers put a high value on the moral provenance of goods and how these contribute to the common good.” Fischer concludes that: “The system itself has the legitimacy to function to the extent that it constitutes a meaningful, moral project (often expressed as ‘solidarity’) for most people most of the time.”

Fischer goes on to argue that “a sense of control over one's own destiny” can provide the experience of “the good life” not only for citizens of a stable, tightly regulated and law-abiding

society such as Germany but also for the Maya coffee farmers of Guatemala, despite the economic inequalities and narco-violence that characterize contemporary existence in their country – a country to which numbers of enterprising Germans emigrated over a century ago to establish coffee farming businesses.

In a complex ethnographical study rich with local detail and intriguing insights, Fischer argues that agency and aspiration are the key drivers of well-being and the good life, assisted by health and physical security; material resources; opportunity structures; larger purposes and projects; family and social relations; and fairness and dignity.

“It takes more than income to produce well-being,” he concludes, “and policy makers would do well to consider the positive findings of anthropology and on-the-ground visions of the good life in working towards the ends for which we all labor.”

An excellent book to read over a cup of Guatemalan coffee, perhaps, with its famously complex and elusive aromatic structure.

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Book Review

## Ever Seen a Fat Fox?

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**Mike Gibney: Ever Seen a Fat Fox?**

**Human obesity explored**

**Paperback:** 250 pages

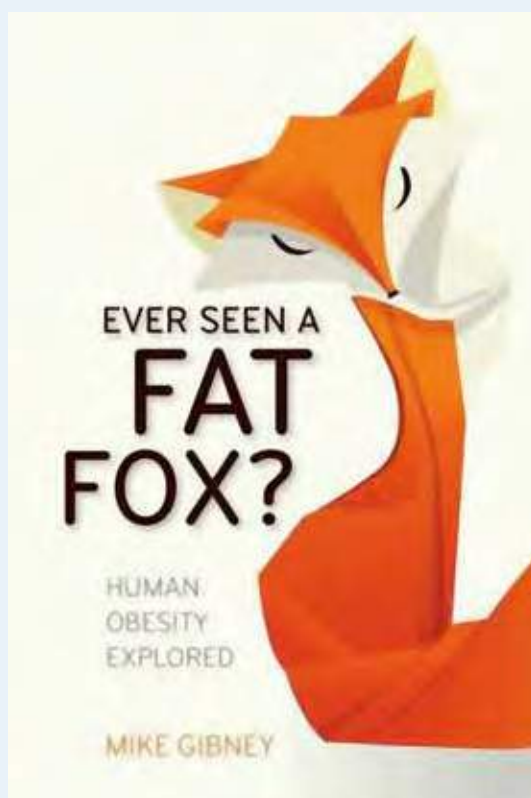
**Publisher:** University College Dublin Press (May 15, 2016)

**Language:** English

**ISBN-10:** 1910820083

**ISBN-13:** 978-1910820087

It is not usual for the titles of scholarly works on nutrition to end with a question mark. Nor is it usual for their wording to be based on a colloquial formulation. Nor again is it usual for their cover artwork to depict an animal. For all these reasons, Prof. Mike Gibney's *Ever Seen a Fat Fox?* challenges the reader before it is even opened. And the book's subtitle, *Human obesity explored*, is a further challenge. This work is an *exploration* of a problem, and very definitely not the blueprint for a solution.



The worlds of human nutrition and animal nutrition are traditionally kept firmly apart. There may be many excellent scientific, medical and cultural reasons for this, but the fact is – as Prof. Gibney points out in his preface – that we share much of our genetic make-up with animals. One might therefore expect much of human experience to be reflected in animal experience. This is the case with certain defining events such as birth and death, and likewise with certain defining experiences such as pain and hunger, but in the case of animals that live in the wild, at least, the parallel does not hold true with respect to the phenomenon of obesity. As Prof. Gibney explains: “Humans are the only species that get fat. We and the fox can develop many common cancers or diseases of the gut or heart. Each species can suffer parasitic, bacterial and viral infections. We each can injure a limb and suffer traumatic injuries. But foxes, like all feral animals, don’t develop lifelong obesity leading to major illnesses from diabetes to hypertension. Humans have a unique relationship with food that neither the fox nor any other species has.”

.....  
 “We are fat because we organized  
 society in such a way as to make that  
 not simply possible but probable”  
 .....

The nature of humans’ relationship with food over the centuries provides the guiding principle for Prof. Gibney’s exploration of the condition of obesity and possible approaches to tackle it. “It is to me blindingly obvious,” he writes, “that, notwithstanding the common sharing of most of our genomes with animals we are fat because we organized society in such a way as to make that not simply possible but probable.” Prof. Gibney’s core understanding of obesity, therefore, is that it is constructed by culture, and that, precisely because human culture is complex, the problem of obesity can only be tackled by a sophisticated combination of solutions supported by a significant financial investment. “No dough, no go!” as the penultimate line of the book puts it.

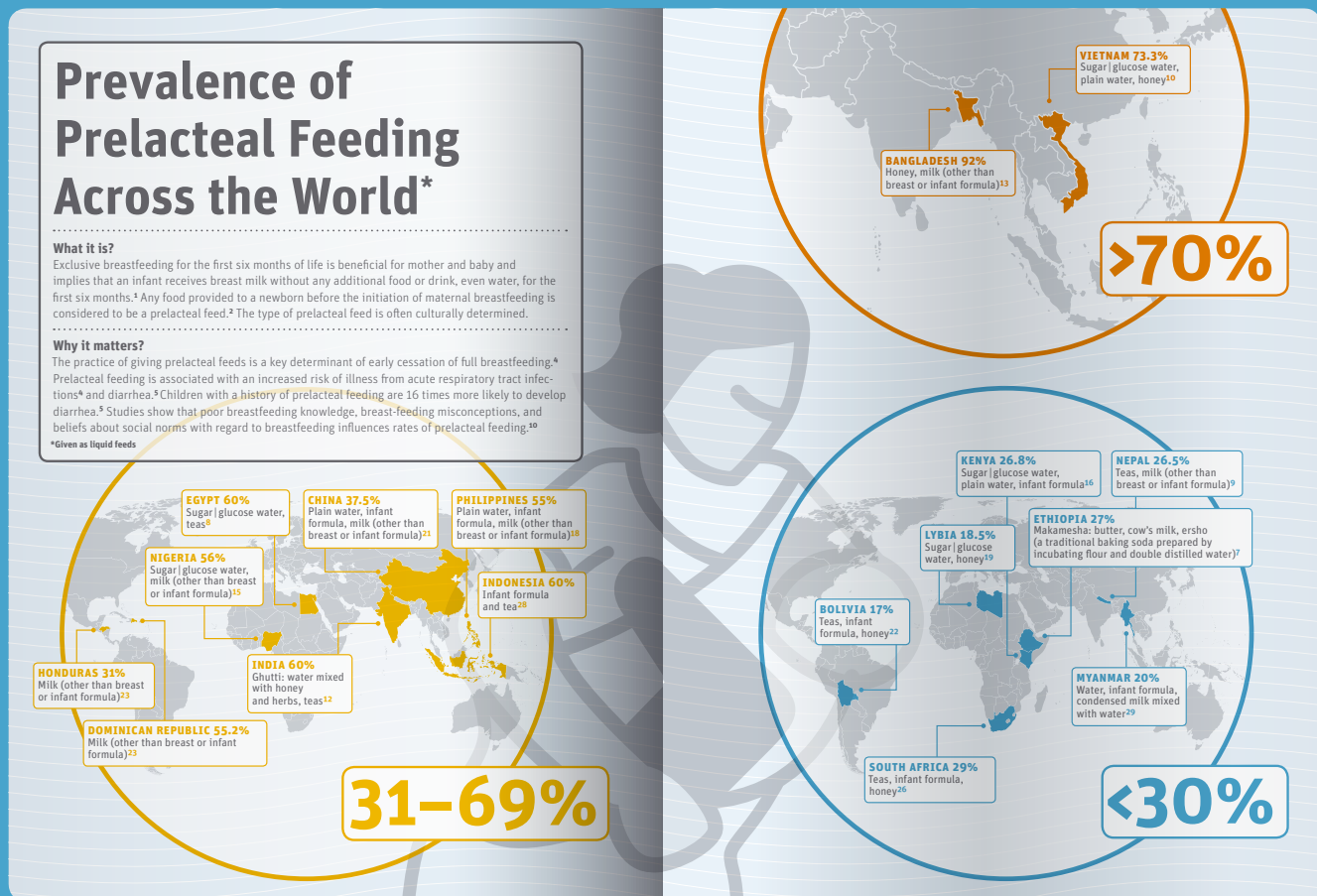
The tone of *Ever Seen a Fat Fox?* is by turns polemical and philosophical, pugilistic and practical. Prof Gibney takes issue with the widely-held tenet that “the modern epidemic of obesity started in the mid-1970s to mid-1980s in the US, and was quickly followed by similar growth surges in the prevalence of obese persons across the globe, which, to this day continues to rise almost everywhere.” While not completely debunking this view, Prof. Gibney finds much to criticize in it, including the application of false metrics and the stigmatization of individuals who are obese. His complicated and compassionate view is that “obesity is so complex from both a social and biological perspective that we will make slow progress in our understanding of bits and pieces of the biological jigsaw and even slower process in the social jigsaw. In the meantime we can wait and hope. Or we can recognize that obesity is simply a consequence of the way we live and we can seek to change our ways. It’s no easy road and that is the central tenet of this book: beware of self-serving advocates selling simple solutions.”

It is perhaps consoling to recollect that, ever since the time of its starring roles in *Aesop’s Fables* some 600 years BCE, the fox has been known for its intelligence, resilience and adaptability. Foxes have an almost unparalleled ability to look after their own interests. Perhaps we can indeed live in hope.

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## References for Infographic

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