THE CONTRIBUTION OF THE PRIVATE SECTOR TO THE PREVENTION AND TREATMENT OF CHILD WASTING

RESULTS OF A LANDSCAPE ANALYSIS

ACTION AGAINST HUNGER

gain
Global Alliance for Improved Nutrition

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This report was written by Action Against Hunger UK and financed by the Global Alliance for Improved Nutrition (GAIN). This work was carried out in order to stimulate new action and commitment to tackle the growing problem of child wasting. It is hoped that the findings will support dialogue on this issue between governments, public agencies and the private sector.

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ABBREVIATIONS AND ACRONYMS

AAH	Action Against Hunger
CMAM	Community-based Management of Acute Malnutrition
CSB	Corn-soy blend
CSR	Corporate social responsibility
F&B	Food and beverage (industry/sector)
FBF	Fortified blended food
GAIN	Global Alliance for Improved Nutrition
GSMA	Global System for Mobile Communications Association
IMCI	Integrated management of childhood illness
IT	Information technology
LMIC	Low- and middle-income country
MAM	Moderate acute malnutrition
MMS	Multiple micronutrient supplements
MSF	Médecins Sans Frontières
MSMEs	Micro-, small and medium enterprises
MUAC	Middle upper arm circumference
NGO	Non-governmental organisations
PPP	Public-private partnership(s)
PTS	Products, technologies and services
R&D	Research and development
RUTF	Ready-to-use therapeutic food
RUSF	Ready-to-use supplementary food
RUF	Ready-to-use food
SAM	Severe acute malnutrition
SBN	SUN Business Network
SMEs	Small and medium enterprises
SQ-LNS	Small quantity lipid-based supplements
SUN	Scaling up Nutrition (movement)
USD	United States Dollar
UN	United Nations
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WFP	World Food Programme
WHO	World Health Organization
WHZ	Weight for height Z-score

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EXECUTIVE SUMMARY

In 2015, when the Sustainable Development Goals were established, they included a bold commitment to eliminate all forms of malnutrition in the world by 2030. Specific targets, set at the World Health Assembly, included reducing the global proportion of children suffering from wasting to below 3% by 2030. Today, globally and in many countries, we are far from reaching that target, and the Covid-19 pandemic is putting millions more children at risk. In 2020, 6.7% of all children under five years of age were wasted, that's 45.4 million cases worldwide, and yet in 2019, despite a significant increase in coverage of community-based management of acute malnutrition (CMAM) over the past two decades, only 11 million children were reported as treated for wasting – suggesting that a minority (less than 24% of the children in need of treatment) currently have access to it. With food insecurity and climate-related shocks, hunger is set to rise worldwide. We need game-changing solutions to dramatically increase the number of children accessing treatment

The Scaling up Nutrition (SUN) movement has long identified public-private partnerships as an important area to enable progress on global nutrition goals, and it has identified missed opportunities to expand that potential. Private sector contributions remain underexplored, particularly in the domain of targeted prevention and management of acute malnutrition/ wasting in children. This study is the result of a landscape analysis undertaken by Action Against Hunger UK for the Global Alliance for Improved Nutrition (GAIN) to identify the spectrum of private sector contributions to targeted prevention and management of wasting, and to identify the major gaps for advocacy, partnership and investment.

The study included a survey of private sector, United Nations (UN), non-governmental organisations (NGOs) and academic actors working in this area, as well as a mapping of products, technologies and services (PTS), and key informant interviews on the barriers to scale. A total of 190 respondents participated in the survey and, together with the landscape searches, 112 products, technologies and services were identified. These were contributed largely by private sector entities, the overwhelming majority (73.2%) of which are micro-, small and medium enterprises (MSMEs), and 59% of these were either start-up" companies or social enterprises.

The key findings regrading private sector contributions include:

- Very low contributions to wasting in terms of cash donations, gifts in kind and corporate social responsibility.
- Only 3% of PTS identified through this work are from multinational companies.
- Only 7% of PTS were derived from public-private partnerships (PPPs).
- 92% of PTS with global distribution were by companies with headquarters in North America and Europe, suggesting inequitable access to global markets.
- Only 9% of private sector entities had made a commitment to the Nutrition for Growth (N4G) Summit, but 48% would consider doing so – a large opportunity for the SUN Business Network.
- 30% of PTS were at early development stages.

In terms of the bottlenecks, opportunities and conflicts for harnessing the private sector's capacity, the following conclusions were drawn:

1. The value of private sector partnerships in terms of innovations, R&D, logistics, skills and capacity to scale up technologies is largely underexplored.
2. Many viable programme innovations and products are currently stuck as pilot stage, due to lack of investment for roll out or large-scale evidence-generation.
3. Key bottlenecks in achieving more innovations and scale were lack of capacity; lack of appropriate partners; demand; restricted markets; and achieving affordable, high-quality products.
4. While market diversification has been achieved through the emergence of MSMEs and social enterprises producing ready-to-use foods (RUFs), many of which are based in low- and middle-income countries (LMICs), this has not resulted in a significant decrease in cost of products, or an increase in markets or demand beyond humanitarian settings. Even though local production does not necessarily make products cheaper given the smaller scale and the higher cost of ingredients there are other advantages to local production, such as the impact on the economy, the impact of the quality of the raw ingredients from local farmers, fostering entrepreneurship, building capacity reduction of carbon footprint, and more sustainable access to supplies for the treatment of wasting.
5. Greater efforts are needed to stimulate local markets in LMICs – specifically through government purchasing in high-burden, non-humanitarian settings – and should be a focus of advocacy for the UN Global Action Plan for Wasting. This is needed both in terms of purchase of RUF and in engaging local business in supply chain, logistics and technologies.
6. Product innovation by small- and medium-sized enterprises (SMEs) and social enterprises, for the development of alternative RUF, is restricted by their capacity to achieve required levels of evidence and a lack of research funding or partners. It may be that market dominance by one main purchaser is a major issue for investors.
7. Perceptions of the value of private sector partnerships is mixed: fear of conflict of interest dominates this relationship, mistrust over regulations prevent partnerships with the food and beverage (F&B) sector, and intellectual property or profit are viewed in a negative light.
8. Existing frameworks for partnership are not fit for purpose. Any such framework or mechanism would need to be driven by donors and governments to enable 'risk-sharing' and maintain the integrity and interests of all parties to attract investment in this space.

CALLS TO ACTION

As a result of these findings, we present a range of 'calls to action' for the global nutrition community, donors, NGOs and private sector entities to improve investment in this area, boost local markets and invest in research and development (R&D).

1. The global wasting community needs to embrace the possibility of market reform and innovation as a key part of planning for the Global Action Plan for Wasting, with the aim of improving effectiveness and lowering costs.
2. A commitment is needed to research innovative product formulation, especially for RUTF, using public and private research capacity. The public sector (UN, NGOs, governments) needs to lead this process, and bring to the table businesses that have the required technical and research capacity.
3. Multi-sectoral actors need to work together to establish a new framework for partnership – maintaining a transparent and ethical approach. Putting aside preconceptions about industry, they need to engage in constructive dialogue to find solutions that achieve better results for children.
4. Maximum learning is needed from the recent experiences of fast-tracking product development for Covid-19 vaccination, which demonstrate how collective action can become a game-changer.
5. Product regulation processes need improving. This is a particular bottleneck for innovation in treatment products for wasting.
6. Investigation into and modernisation of procurement models is needed, in order to lower costs for governments (eg models such as COVAX, GAIN Premix Facility (GPF), which could be tailored to local or regional markets accordingly).

Achieving a 'game-changing' solution for wasting is needed to break the impasse in product development and scale-up of technologies, but this is contingent on actors. coming together to establish new ways of working and on identifying the *"sweet spot of compatible partnerships for nutrition"*.

INTRODUCTION

In 2015, when the Sustainable Development Goals were established, they included a bold commitment to eliminate all forms of malnutrition in the world by 2030. Specific Global Nutrition Targets, set at the World Health Assembly, included reducing and maintaining the global proportion of children suffering from acute malnutrition to below 5% by 2025 and below 3% by 2030.[1] Yet, more than 2 billion people worldwide do not have regular access to safe, nutritious and sufficient food.[2] Consequently, the global burden of malnutrition, in all its forms, remains a challenge.

Recent prevalence-estimates suggest that 149 million children under the age of five are stunted and approximately 45.4 million children under the age five suffer from wasting – equivalent to 6.7% of the world's children under five.[3] Wasting is the reduction or loss of body weight, in relation to height, that results from recent or severe weight loss, due to acute food shortages and/or frequent or prolonged illness. Wasting is life threatening for the child and has lasting effects on health, growth and development, but safe and effective treatment exists.

Yet, even before the Covid-19 pandemic, it was estimated that, in high-burden contexts, the average coverage rates were around 38.5%, [4]Myatt M, Woodhead S, Guerrero S, Alvarez JL (2015 and treatment numbers reported from 2019 total only 11 million, suggesting a minority (less than 24% of children in need of treatment), currently have access to it.[5]

So, even though coverage of community-based management of acute malnutrition (CMAM) has been increasing in the last two decades, we are still trapped in a low-level equilibrium of failure. With food insecurity and climate-related shocks, hunger is set to rise worldwide, and we need radical and game-changing solutions to address this.

The majority of children with wasting are found in a small number of high-burden countries across the Sahel and Central Africa regions, and in south-east Asia. These are countries that experience multiple challenges of food insecurity, political instability, fragile health systems and aid dependence. Since 2020, the Covid-19 pandemic has exacerbated this situation further, due to broad impacts on household incomes, availability and affordability of nutritious foods, as well as health and social service disruption.[6] In 2020, modelling exercises were undertaken to estimate the specific impact of Covid-19 on wasting. This estimated that an additional 6.7 million children under five could suffer from acute malnutrition,[7] and that there could be up to 10,000 additional deaths per month globally, due to severe acute malnutrition (SAM). In light of this, WHO and partners called for an additional $2.4bn investment to scale up prevention and treatment of wasting.[8] Short of a major sea change in donor priorities, new sources of investment are badly needed.

Given the severe effects of wasting on health and development of children, prevention is preferable, and the key mechanisms for prevention largely include behavioural interventions and increasing caregivers' awareness of healthy diets – such as exclusive breastfeeding to six months, sustained breastfeeding until two years and beyond, achieving a minimum acceptable diet, and adequate dietary diversity using locally available produce. Prevention can also include use of market-based solutions and agricultural support to increase access to fortified food products that are acceptable and safe for children.

In the context of emergencies and humanitarian situations, prevention can mean targeted food assistance or cash transfers to those most at risk. Improved surveillance and real-time data is critical for the management of surge-responses by humanitarian actors and governments. The treatment of wasting is often delayed due to detection, so expanding screening programmes such as mid-upper arm circumference (MUAC) measurement, by community health workers or carers, can add huge value, and alternative technologies and devices are being explored. Children with severe wasting with complications, require inpatient care with therapeutic milks or ready-to-use therapeutic foods (RUTFs), while those without complications can be treated in community or outpatient settings. Children with moderate wasting receive fortified blended foods (FBFs) or ready-to-use supplementary foods (RUSFs) in supplementary feeding programmes, where those are available. Adequate patient follow-up support is also needed, due to high rates of default, and follow up can be improved by better case management methods and technologies.

Scaling up wasting prevention and treatment is the focus of the UN Global Action Plan for Wasting.[5] Changes in policy and systems, as well as greater financial investment from governments, are required to enable moving from predominantly humanitarian response systems towards an integrated public health approach, with high coverage. Countries with high burdens of wasting include those most vulnerable to food insecurity, climate shocks and political instability, as well as having weak health systems, human resources, supply logistics and data-management systems, and inadequate financing of nutrition treatments. Thus, many barriers exist to scaling up wasting services in contexts that require game-changing solutions, innovative use of low-cost technologies and the bringing together of 'all the talents' to address scale. At a recent practitioner's conference on CMAM scale-up in fragile contexts, the cost of RUF was identified as one of the most important barriers to scale.[9] The absence of scalable technologies and systems for responsive health care were also highlighted. Despite large numbers of innovative nutrition data systems and apps[10] being piloted over the last decade, very few of these have had a business growth model that enables scale.

The gap in being able to scale up technologies is not only about funding, it also has to be about reducing the cost of intervention, improving the efficiency of diagnosis and treatment, stimulating the markets for local product innovation and local technology providers to emerge, and addressing the underinvestment by public authorities, donors and government health ministries.

The Scaling up Nutrition (SUN) movement has long identified public-private partnerships (PPPs) as an important area to progress global nutrition goals, and launched the SUN Business Network (SBN) in 2014 to stimulate private sector commitments to, and investments in, nutrition and foods systems. The SBN now includes 25 global members, and together with the SBN national networks established in 18 countries, which coordinate small and medium enterprises (SMEs), the SBN has over 1,000 private sector members. Despite this significant progress, a consultation convened by GAIN in 2018 identified missed opportunities for involvement of the private sector,[11] and various studies have looked at the challenges.[12,13] There is a long history of tension between global health actors and the food and beverage (F&B) industry, which have historically been at odds over issues such as the marketing of breastmilk substitutes, production and marketing of obesogenic and hyper-processed foods. These issues create a range of perceived and real conflicts of interest, which prevent meaningful partnerships from being considered and in some cases have led to high-profile criticism of NGOs and UN agencies.[14,15] Indeed, many civil society and UN agencies' policies explicitly prohibit engagement with F&B companies directly on nutrition issues, other than for the purpose of advocacy efforts to improve industry practices.[16]

Private sector involvement may be underexplored, due to conflict of interest in the food and agriculture industry as well as low interest from the private sector. Private sector entities may perceive markets in 'high burden of wasting' contexts as less viable or unstable as a 'market'. Low political will and capacity, and limited options for sustainable financing of programmes and services for prevention and treatment of acute malnutrition, may hamper private sector incentives to invest and those innovations developed via public-private partnerships to be taken sustainably to scale.

Harnessing the broader capabilities of the private sector could be vital steps in addressing the considerable challenges in expanding coverage. Partnerships between the private sector, NGOs and academia might be useful, particularly when it comes to developing, testing, and selecting innovations and technologies for scale-up with the most value for money. According to the *Global Nutrition Report, 2020* the Nutrition for Growth (N4G) initiative has triggered an increased investment in international assistance for nutrition, although domestic commitments are still mixed. However, overall nutrition financing is not increasing and still far below what is needed to deliver on global targets. This funding climate means lower incentives for NGOs to invest in competitive innovation development.[17]

The private sector could potentially play a role in addressing some of the critical operational challenges, such as production of RUF, supply chain and distribution logistics, mHealth technologies and telemedicine, real-time data usage and system responsiveness; GIS and geospatial mapping, and artificial intelligence (AI) for improved or simplified diagnostics. That said, creating an enabling environment for ethical and sustainable PPPs to yield synergistic outcomes requires strict regulations, at the same time as sensitivity to the needs of private sector actors, ideally underpinned by responsible business pledges to global nutrition goals.[18]

Over the last 10 years, the SUN Business Network has reinforced the participation of SMEs and international corporations in the production of nutrition foods, and is supporting private sector actors to make commitments to Nutrition for Growth.[19] It has itself committed to engage over 3,000 SMEs by 2024.[20]

The purpose of this work was to better understand the current scope of private sector investments in wasting, to understand challenges and opportunities for engagement with the private sector, and to identify key gaps for private sector actors to develop partnerships, research and development plans and commitments to the N4G process. This study shows that a much more concerted effort is needed to stimulate radical changes in the supply side of the equation with the private sector.

OBJECTIVES OF THE LANDSCAPE ANALYSIS

The purpose of the landscape analysis was to engage with the SUN Business Network of SMEs, major corporates involved in nutrition, UN agencies, academics, donors and NGOs, to gather information about existing partnerships in order to achieve the following objectives:

1. Identify private sector entities with innovations, products or services relevant for the targeted prevention and management of acute malnutrition/wasting in children, in terms of size, type, scale and scope of each of these private sector solutions or initiatives, as well as the type of partnership.
2. Identify and map the innovations, products or services that can be, or are currently being, applied to targeted prevention and management of acute malnutrition/ wasting in children.
3. Estimate the value of private sector contributions to the area, in terms of the value of corporate social responsibility and direct support.
4. Identify the gaps and challenges experienced by the private sector actors that prevent an expanded contribution in this area.

METHODOLOGY

Data collection consisted primarily of an online survey, reinforced by key informant interviews, extensive internet searches and a non-systematic literature review. We cross-checked the findings of the survey with the Tokyo 2021 Nutrition for Growth Commitments Tracker[21] and with data from recent SBN surveys.

In order to achieve the objectives laid out above, several methodologies for data collection were needed. To identify private sector entities engaged in wasting (Objective 1), and to estimate the value of private sector contributions to the area – in terms of the value of corporate social responsibility and direct support (Objective 3) – we only used survey data, and therefore findings are limited to those entities who contributed to the survey (listed in *Annex 2*). To identify innovations, products, technologies or services (Objective 2), we used information from an online survey, plus additional searches of grey literature, internet and private sector databases, and market reports for products. To identify the gaps and challenges, experienced by the private sector actors, that prevent an expanded contribution in this area, we used information from the survey, plus key informant interviews and case studies found in literature (Objective 4).

ONLINE SURVEY

The survey was shared through social media, professional networks and through contacting members of SUN Business Network directly. It was also shared with various networks of global nutrition actors, such as registered participants of the No Wasted Lives Coalition, the State of Acute Malnutrition communities of practice, Emergency Nutrition Network (ENN), Micronutrient Forum (MNF), 1,000 days and corporate networks such as the Global Business Coalition on Health (GBC Health). The data collection tool of the online survey can be found in *Annex 1*. Survey data was collected between 15 April and 30 June 2020. Initial dissemination of the survey showed uptake mainly among NGO actors, so additional efforts were necessary to reach private sector audiences. Specifically, key informants provided lists of companies and contacts, and UNICEF and the World Food Programme's (WFP) supply division provided lists of approved manufacturers for supplementary and therapeutic food products and pharmaceuticals.

To expand the coverage of the survey, we also conducted searches of private sector companies using online databases such as the Open Corporates database. Using these contacts, we made further targeted requests for information from a total of 84 companies that might have investments in this area, which included known producers of therapeutic products, UN/WFP suppliers, large food and beverage (F&B) industry corporations, multinational companies with a large CSR profile, and common technology partners in the mHealth-for-development space. Survey results were analysed using basic descriptive statistics.

KEY INFORMANT INTERVIEWS

Key informant interviews (KIIs) were conducted with respondents from NGOs and UN agencies' staff, regarding perspectives on the current and future roles for private sector engagement, key needs and opportunities in the prevention and management of wasting that could be resolved by private sector solutions, as well as challenges to engagement. Key informant interviews were conducted over Zoom and transcribed. Thirty partners were invited to participate and nine interviews were carried out.

The KIIs and survey results were analysed to identify key topics or issues that were frequently noted by respondents. These were then categorised into major areas of work, gaps and opportunities. Interviews were conducted using a semi-structured 'dialogic' approach (rather than a diagnostic approach), listening to the organisations and giving the opportunity to be open about challenges and experiences. In addition, four individuals were invited to respond to specific case studies and help deepen understanding of particular barriers reported in the surveys (listed in *Box 2* and in the discussion).

WEB SEARCHES

In order to complement the information submitted through the survey, additional web searches were carried out, as not all of the companies we had targeted had responded to the survey or to direct email contact. These searches enabled us to develop a more comprehensive picture around the products, technologies and services available in the sector (Objective 4). Database searches included both published academic and grey literature, web searches, publications and supply catalogues. Searches were carried out in PUBMED and Google Scholar, and with Google, applying the following terms:

"Acute malnutrition" *or* "wasting" *and* any of: "supplementary food, RUSF, therapeutic food, RUTF, alternative formulations, local production, prevention, micronutrient, mHealth, eHealth, telemedicine, data systems, nutrition information systems, GPS, technologies, eLearning, supply chain, anthropometry."

In addition, we searched content on key sites for global health and nutrition sector publications – ENN and State of Acute Malnutrition, Nutrition Connect and the SUN website.

The interactive map of products, services and solutions was constructed using Kumu Software, clustered by product classification and type. Information gathered during a previous wasting landscape analysis was also included.

The interactive Kumu map was developed by pooling the results from the survey and searches together. Of the initiatives and products identified in the map, 26 of 112 were identified through internet searches rather than direct engagement with a company.

LIMITATIONS OF DATA COLLECTION

The combination of online survey dissemination, followed by extensive email requests to individual companies still left many gaps in the 'true' landscape of corporate engagement in this sector. The results of the survey cannot, therefore, be taken as either comprehensive or inclusive of all contributions of the private sector to this space, even taking into consideration the efforts to complement the data collected with information publicly available on the internet and published literature. However, this mapping is the first of its kind in the area of prevention and treatment of acute malnutrition, and is intended to be a 'living' document that can evolve as new initiatives are identified.

RESULTS

DESCRIPTION OF SURVEY RESPONDENTS

A total of 190 survey responses were received. Among these, 78 were removed from analysis, of which 2 were double entries and 76 did not enter any data beyond the name of the organisation. Analysis of survey data is therefore based on 112 individual responses, from a total of 106 different organisations (see *Annex 2*, for a list of company names). Of the 112 respondents, 57 (50.8%) were private sector organisations, 7 respondents (6.3%) identified as academic institutions, 2 as a donors (1.8%), 27 as NGOs (24.1%), 5 as government (4.5%), 11 as UN agencies (9.8%) and 3 (2.7%) as 'other' (See *Figure 1*).

BOX 1: FINDINGS IN A NUTSHELL

Only 3% of products, technologies and services (PTS) for wasting are from multinational companies.

Only 7% of PTS were derived from public-private partnerships.

Over half (51%) of PTS were from companies headquartered in Asia, LAC or sub-Saharan Africa.

92% of the PTS with global distribution were made by companies headquartered in North America and Europe.

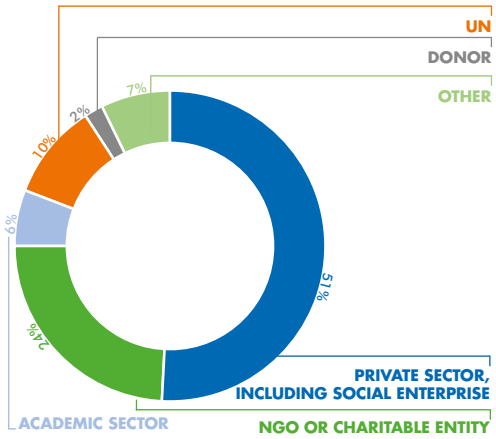
NO PRODUCT by a company headquartered in sub-Saharan Africa or LAC region had yet achieved global distribution.

75% of PTS had a restriction in the form of license, patent or copyright.

30% were 'emerging', i.e. currently at test/design stage, pilot or district scale.

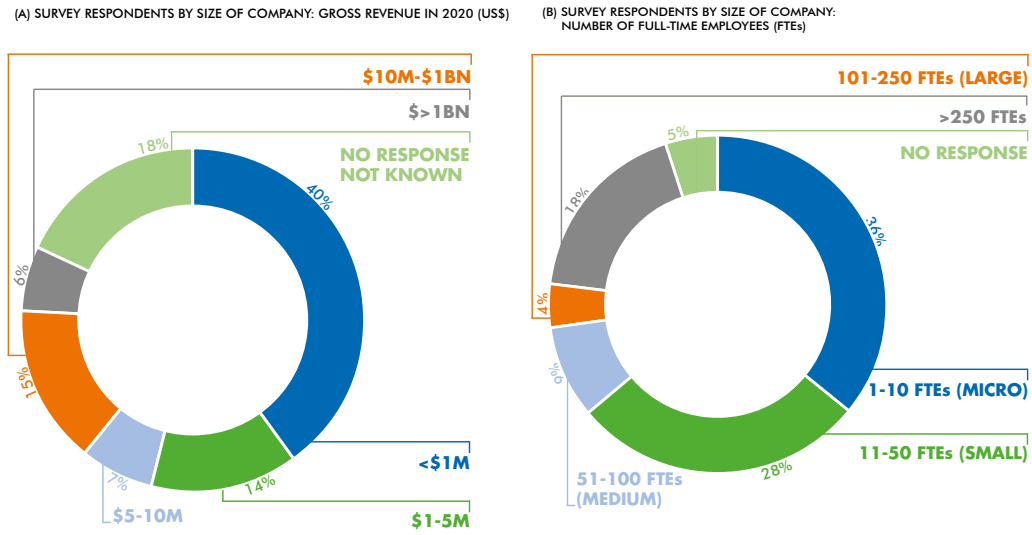
Only 9% of respondents had yet made any pledge to the Nutrition for Growth Summit, but 48% would consider doing so, suggesting a large opportunity gap for the SUN Business Network.

FIGURE 1: SURVEY RESPONDENTS BY SECTOR



Among the private sector respondents (n=57), 75% (n=43) were from the food, beverage, tobacco industry or food and staples retailing industries. The survey also requested respondents to classify their size by number of full-time employees and by the gross revenue in the last year (2020). The majority of companies were classed as ***small or micro-enterprises***, (64%, n=36), 9% (n=5) as ***medium enterprises*** and 21% (n=12) large (based on their number of full-time employees), and the majority of respondents (40%) had gross annual incomes of less than $1m. Importantly, only one of the private sector entities that responded to the survey had an income of over $1bn (*Figure 2*). Among the 36 private sector respondents classified as SMEs (according to the number of employees), 30 had gross revenues of less than $5m, while 3 had revenues greater than $10m.

FIGURE 2: PRIVATE SECTOR RESPONDENTS BY SIZE OF COMPANY



We also classified the private sector entities by type (*Figure 3a*) and by region of operation (*Figure 3b*). 59.6% (n=34) of private sector companies identified themselves as a for-profit business, and the next largest category was social enterprise (22%, n=12).

SOCIAL ENTERPRISES: Of the 17 social enterprises, 82% were SMEs (n=14), 59% (n=10) had revenues under $1m, and 88% (n=15) of them were operational in high-burden-of-wasting contexts of sub-Saharan Africa, Asia, or both.

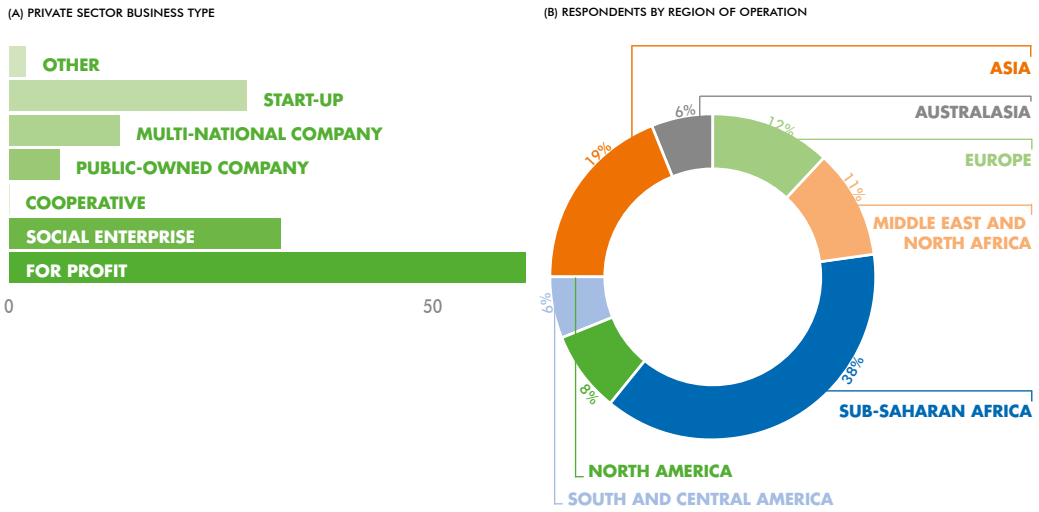
START-UPS: 20% (n=15) of the private sector respondents identified themselves as being start-up enterprises,[1] of which half were social enterprise start-ups. Among the start-ups, 11 (73%) were operational *only* in sub-Saharan Africa, 1 in Asia and 2 in the Middle East and North Africa. One start-up reported operating in both Asia and sub-Saharan Africa.

SUB-SAHARAN AFRICA: 38% of the private sector respondents were operational in sub-Saharan Africa (n=37), of which 87% were SMEs (n=32), 32% were start-ups (n=12), 30% classified themselves as social enterprises (n=11), and 45% had low revenues (n=26).

ASIA: Among the 18 companies operational in Asia, only 39% of these were SMEs, 11% were start-ups, 33% were social enterprises, and only 22% had low revenues (n=8).

1 *Une start-up est définie comme une entreprise en phase initiale d'activité, dirigée par des entrepreneurs. Elle repose sur la mise sur le marché d'un nouveau produit ou service sur la base d'une hypothèse sur les lacunes du marché. Les start-ups ont souvent des coûts élevés et des revenus limités, et font appel à diverses sources de financement.*

FIGURE 3: PRIVATE SECTOR RESPONDENTS BY (A) TYPE OF BUSINESS AND (B) REGION OF OPERATION



PRIVATE SECTOR ENTITIES' ENGAGEMENT IN PARTNERSHIPS AND SOCIAL RESPONSIBILITY

The survey enquired about current activities undertaken relating to partnerships and corporate social responsibility (CSR). The majority of private sector respondents (67%) reported that they engaged in public-private partnerships either with governments, NGOs, the UN or academia, and 69% engaged in corporate social responsibility activities (*Table 1*). Only 14% engaged in neither activity.

Among the types of CSR engaged in, the most common type was charitable giving (25%), followed by investing in social enterprise. 37% of companies were investing in development and testing of products or tools related to wasting. In a positive light, 8 of the companies were engaging in three or more activities related to CSR, and 7 out of 8 of these were MSMEs, 5 of which self-identified as social enterprises (as opposed to following a business/profit-only model). GC Rieber Compact is the only multinational, large company with multiple contribution areas to wasting in its current CSR activities.

TABLE 1: ENGAGEMENT IN PUBLIC-PRIVATE PARTNERSHIPS AND CSR ACTIVITIES LINKED TO THE TARGETED PREVENTION OR MANAGEMENT OF WASTING IN CHILDREN

TYPE OF PUBLIC-PRIVATE PARTNERSHIP	% (N)*
No public-private partnership	33% (16)
With government partner/s	29% (15)
INGO partner/s	35% (17)
Local NGO or civil society organisation partner/s	35% (17)
UN entity or donor partner/s	27% (13)
Academic partner/s	10.4% (5)
TYPE OF CORPORATE SOCIAL RESPONSIBILITY ACTIVITY	**% (N)***
None	31.5% (15)
Philanthropic/charitable giving – cash	3.2% (2)
Charitable giving – gifts in kind	25% (12)
Direct implementation of pro-social programmes	10.4% (5)

Investing in social enterprise	20.8% (10)
Investing in research	16.7% (8)
Investing in local capacity	12.5% (6)
Supporting volunteerism	2.1% (1)
Environmental impact and sustainability	14.6% (7)
Other	8.3% (4)
COMPANIES ENGAGED IN R&D FOR WASTING	**% (N)**
Product development, testing and sales, related to wasting	37.5% (18)

** Numbers here are additive, as most PPPs involved multiple sectors/partners and engaged in multiple forms of CSR.*

TABLE 2: ESTIMATED VALUE OF CSR ACTIVITIES RELATED TO WASTING BY PRIVATE SECTOR RESPONDENTS ($)

	ESTIMATED ANNUAL DONATION THROUGH CHARITABLE GIVING	AVERAGE ANNUAL CONTRIBUTION IN GIFTS IN KIND	FINANCIAL CONTRIBUTION THROUGH CSR PROGRAMMES AND ACTIVITIES	THROUGH CONTRIBUTIONS IN KIND (EG VOLUNTEERISM)
Total annual contribution	17,411	2,708,821	65,461	62,056
Average annual contribution	1,339	159,342	5,035	7,757

COMMITMENTS TO THE N4G: Regrettably, only 9% of private sector respondents stated that they had made any form of commitment to the Nutrition for Growth Summit (N4G) and/or the Food Systems Summit. 43% mentioned that they had no plans for making a pledge, compared to 48% who were considering making a pledge but had not yet done so. This suggests a large opportunity gap to expand the target private sector group for engagement in N4G and, in particular, for the making commitments related to scaling up child wasting.

PRODUCTS AND SERVICES RELEVANT TO WASTING: Survey respondents were asked if they had any product, solution or service that was related to the detection, targeted prevention or management of acute malnutrition/wasting in children, to which 29 respondents had at least one, 12 respondents said no and 16 did not respond. Among the 29 respondents that had a product or service linked to the targeted prevention or management of acute malnutrition, 23 of these mentioned food products and 7 were non-food products, such as medical devices, supplies, technologies or services. Among the 23 companies that mentioned food-based products, 7 respondents were producers of RUTF, 2 of which used alternative recipes, and 3 produced products for management of moderate wasting. The remainder (n=13) mentioned products either for the prevention of malnutrition or complementary feeding.

LANDSCAPE MAP OF PRODUCTS, TECHNOLOGIES AND SERVICES

As part of the survey, 78 products, solutions or services were reported. 51 respondents submitted just one entry, 10 submitted two, and 5 submitted three or more, 2 were removed as duplicates. As the aim was to generate a landscape of products and services as comprehensive as possible, in addition to the product and services submitted via the survey, an additional 36 were identified through literature and internet searches, supply catalogues and key informant interviews. The landscape includes all products or services for wasting, from both private and non-private sector entities. The total number of products, solutions and innovations, were identified through the combination of methods and added to the map, to give a total of 112 (*Table 3*). This includes 33 products for the treatment of severe acute malnutrition (SAM), 10 for moderate acute malnutrition (MAM) treatment, 34 for prevention of wasting, and 20 information technologies. When it comes to prevention products, we have listed products that were mentioned by respondents, but have not assessed them in terms of their relevance or quality for targeted prevention of wasting.

TABLE 3: TOTAL PRODUCTS, TECHNOLOGIES AND SERVICES, BY TYPE

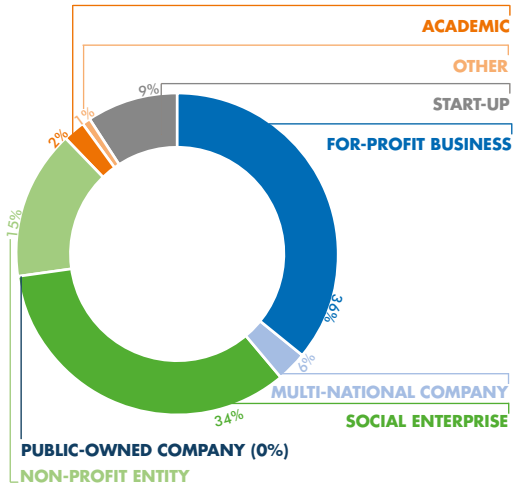
GROUP	SUB-GROUP		SUB-GROUP TOTAL
PREVENTION PRODUCTS	Complementary foods and porridges that require cooking/ preparation	9	34
	Complementary foods and porridges that are ready-to-use with minimal/no preparation	0	
	Small & medium quantity lipid-based nutrient supplements/ ready-to-use complementary foods	8	
	Energy fortified biscuits	1	
	Other	16	
MAM TREATMENT	Standard fortified blended foods (eg CSBs++, Supercereal +, etc)	2	10
	Standard ready-to-use supplementary foods	6	
	New formulation: Reduced milk-protein content supplementary food	0	
	New formulation: Non-dairy/non-animal supplementary food	1	
	Microbiota directed complementary foods	0	
	New formulation: Peanuts replaced by other legumes, cereals or seeds	0	
	Other	1	

SAM TREATMENTS	Therapeutic milks (F-75, F-100)	2	33
	Standard, ready-to-use therapeutic food	25	
	Alternative formulation of RUTF: Milk protein content as per current recommendations (50% of total protein) but peanut replaced by other legumes, cereals or seeds (Renovations)	3	
	Alternative formulation of RUTF: Milk protein content reduced/ replaced by another animal protein, such as fish, milk, egg or insect (also known as Inovations)	1	
	Alternative formulation of RUTF: Added amino acids or increased micronutrient (also referred to as Novel)	0	
	Alternative formulation of RUTF: Non-dairy alternative	1	
	Other	1	
AGRICULTURAL PRODUCTS	Food fortification approaches	0	1
	Biofortification	1	
	Other	0	
MICRONUTRIENT SUPPLEMENTS	Vitamin and mineral supplements	6	8
	Sprinkles	1	
	Natural product supplement (animal or plant based)	0	
	Other	1	
INFORMATION TECHNOLOGIES	Data systems and surveillance	6	20
	Supply chain systems	3	
	mHealth tools for diagnostics	3	
	Communications or capacity building	1	
	Beneficiary tracking systems	0	
	Cash transfer systems	0	
	Other	0	
	Case management	7	
MEDICAL DEVICES AND DIAGNOSTICS	Diagnostic tools	4	4
	Medical equipment	0	
	Other	0	
OTHERS	Medical service provision	0	2
	Logistics and supply chain	0	
	Other	2	

PRODUCTS, TECHNOLOGIES AND SERVICES BY ORGANISATION

In the landscape map, we looked at which sectors had developed products, technologies and services. 36% of the submissions were from private sector entities, and 34% from social enterprises. Notably, only 3% of the entries were from multinational companies, which suggests a significant gap in PTS from companies that have a high level of international capacity, including in R&D.

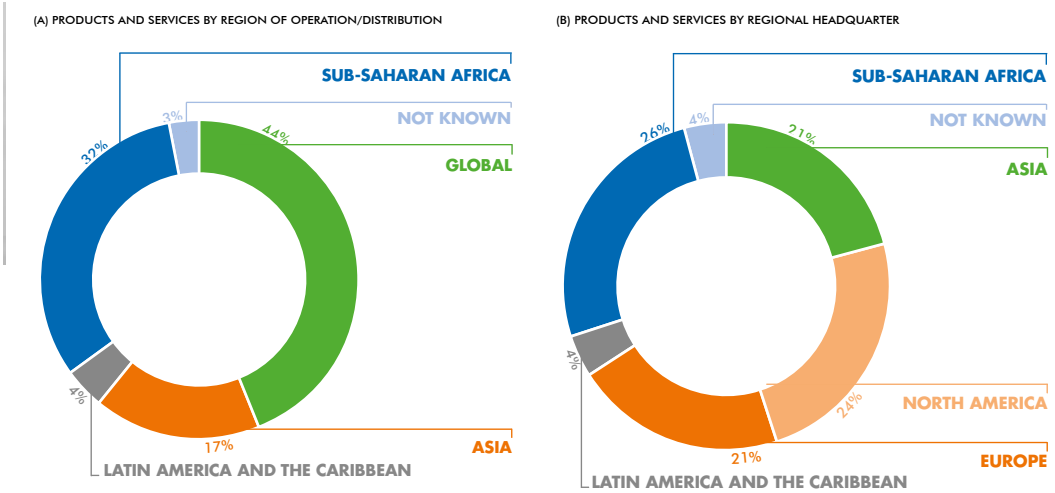
FIGURE 4: PRODUCTS AND SERVICES BY TYPE OF ORGANISATION



Among these, we asked if the PTS were developed as part of a public-private partnership. Only 7% of them were. This indicates another opportunity gap: for collaboration in development and scale.

PRODUCERS BY REGION AND DISTRIBUTION

FIGURE 5: PRODUCTS, TECHNOLOGIES AND SERVICES BY (A) REGION OF OPERATION AND (B) HEADQUARTERS



The producers of the entries, grouped by regional headquarters and region of distribution, show a strong skew towards high-income countries accessing global markets. Of the 112 entries, 45% (n=50) of them were made by companies headquartered in North America or Europe, and 51% (n=57) of them were from companies headquartered in Asia, LAC or sub-Saharan Africa. This trend is indicative of the large number of producers of RUTF at national scale that have emerged since the Nutriset patent was modified to allow for an "online patent usage agreement" to be granted to a small network of NGOs, small businesses and social enterprises operating in LMICs as part of the 'PlumpyField Network', which operates as a franchise.[22] 44% (n=49) of the entries were already operational/distributed in more than one region ("Global"). However, when we look at the regions of distribution, we can see that for those entities where distribution is global (defined as more than one region), 92% (n=103) of them were produced by companies headquartered in North America or Europe and 8% (n=9) in Asia. No globally distributed products or services were from companies headquartered in Africa or Latin America and the Caribbean.

PRODUCTS, TECHNOLOGIES AND SERVICES BY RESTRICTIONS AND SCALE

The entries categorised by stage of development or scale (*Figure 6*), showed that 31% (n=35) were currently at testing or pilot stage, or were small-scale. Types of legal, intellectual property, or trade restrictions were listed as: public domain or public good (unrestricted), creative commons licence, copyrighted, patent granted, and patent pending. Information about restrictions was not available for most of the products, either as the respondent did not enter the information, did not know, or the information was not available on the search sources. However, for those with restriction information (n=56), **76% of these had some form of restriction**. Many of the food products were trademarked but not patented. As shown in *Table 4* below, there was no association between the presence of restrictions and the degree of scale. *Table 5* shows the scale of distribution of PTS by each product type. It is apparent that there is very limited investment in product innovation/development of MAM treatments and medical diagnostics, which may indicate gaps in the sector. Meanwhile, information technologies are predominantly 'stuck' at small-scale.

FIGURE 6: PRODUCTS, TECHNOLOGIES AND SERVICES BY (A) STAGE AND SCALE AND (B) RESTRICTIONS

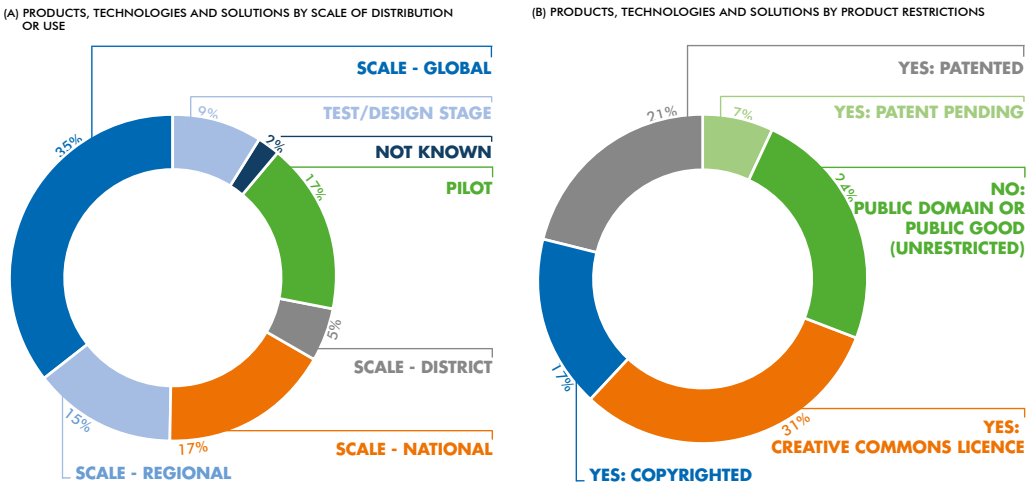


TABLE 4: PTS BY RESTRICTIONS AND SCALE OF DISTRIBUTION

	UNRESTRICTED	RESTRICTED
Test/design stage	1	6
Pilot	4	8
Scale – District or provincial	2	3
Scale – National	1	5
Scale Regional	0	4
Scale Global	3	6

TABLE 5: PTS BY SECTOR AND SCALE

	TEST/ DESIGN STAGE	PILOT	SCALE - DISTRICT	SCALE - NATIONAL	SCALE - REGIONAL	SCALE - GLOBAL	TOTAL
Agricultural products	0	0	0	1	0	0	112
Prevention products	5	6	2	2	4	14	1
MAM treatment	1	1	0	0	2	6	34
SAM treatment	0	4	0	11	6	12	10
Micronutrients	0	0	0	2	5	1	33
Information technologies	1	7	4	1	0	6	8
Medical equipment devices and diagnostics	2	1	0	1	0	0	20
Services	0	0	0	0	0	0	4
Other	1	0	0	0	0	0	0

CARTE INTERACTIVE

An interactive map of the landscape of products, technologies and services for wasting has been generated using Kumu, to enable easy visualisation of the products, and interactive access to the product supplier and information. The site can be accessed using the link: https://bit.ly/3mfEAkq or by scanning the following QR code.

The default setting of the interactive map is a grouping by product type (Figure 7). By clicking on the 'tags' option (see the green arrow), you are able to select from a more detailed list of product groups.

You can also search for a product directly, by clicking the search function (pink arrow).

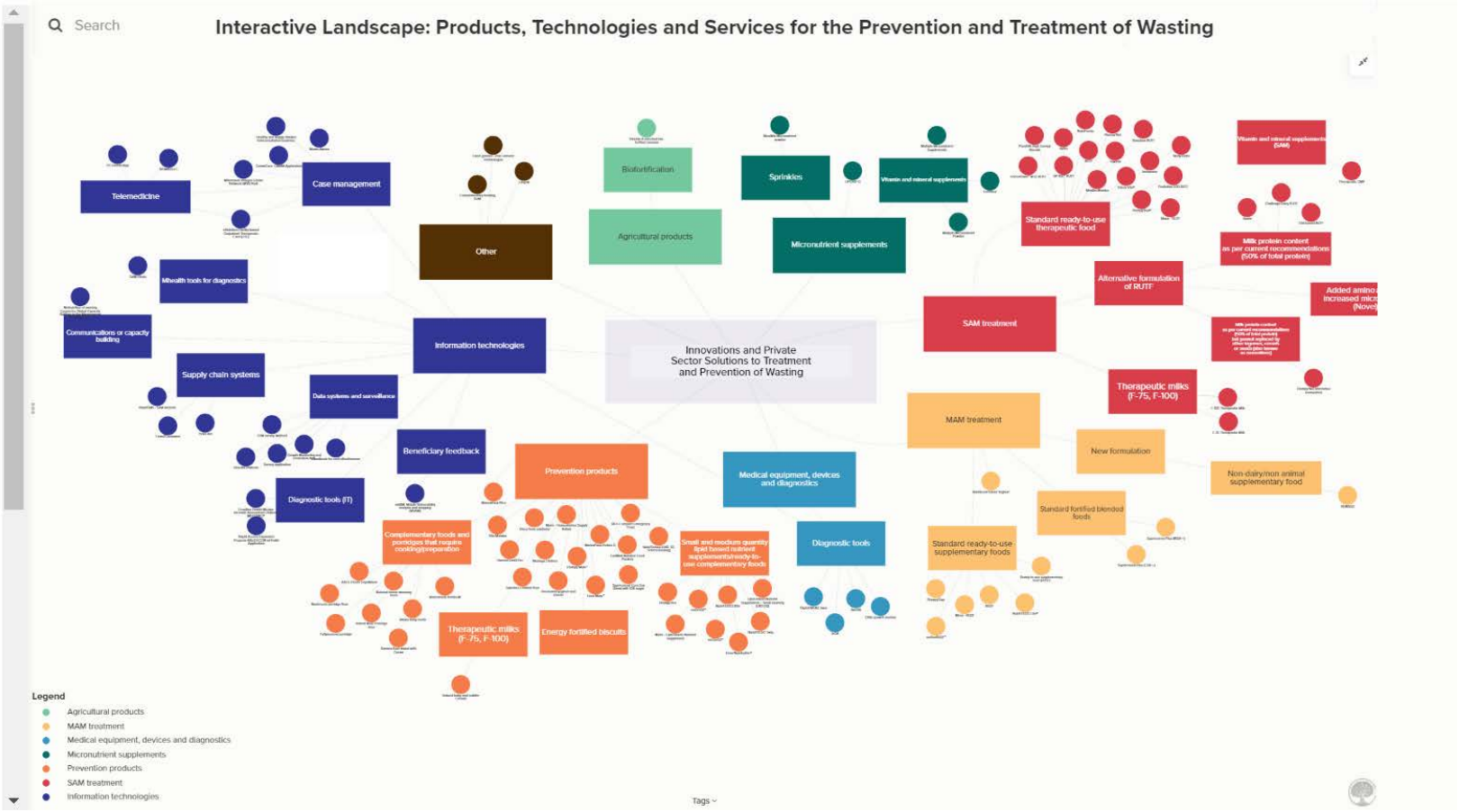
FIGURE 7: LANDSCAPE OF PTS – VISUALISING PRODUCT LISTS

Product groups:

- Agricultural products
- Information technologies
- MAM treatment
- Medical equipment, devices and diagnostics
- Micronutrient supplements
- Other
- Prevention products
- SAM treatment

Sub-clusters:

- Alternative formulation of RUTF
- Beneficiary feedback
- Biofortification
- Case management
- Communications or capacity building
- Complementary foods and porridges that require cooking/preparation
- Data systems and surveillance
- Diagnostic tools
- Diagnostic tools (IT)
- Energy fortified biscuits
- Mhealth tools for diagnostics
- Milk protein content as per current recommendations (50% of total protein) but peanut replaced by other legumes, cereals or seeds (also known as renovations)
- New formulation
- Small and medium quantity lipid based nutrient supplements/ready-to-use complementary foods
- Sprinkles



By clicking on one of the product groups, and tapping 'Focus' (green arrow in Figure 8), all products in that group are highlighted. Click on individual products and, using the three dots (pink arrow in Figure 8), you can see the product information.

FIGURE 8: INTERACTIVE LANDSCAPE VIEW – CLICK-TO-VIEW INDIVIDUAL PRODUCT SNAPSHOT

LANDSCAPE OF PRODUCTS AVAILABLE FOR THE MANAGEMENT OF WASTING

Ready-to-use foods (RUFs) are essential for the management of wasting. The landscape in *Figure 7* distinguishes between foods for the management of moderate and severe wasting and foods used for targeted prevention.

PRODUCTS FOR SEVERE WASTING

Two types of products are used for the treatment of severe wasting: therapeutic milks and ready-to-use therapeutic foods (RUTFs). Historically, children with severe wasting were treated in hospital with therapeutic milks F-75 and F-100. Ready-to-use therapeutic foods (RUTFs) were developed in the late 1990s. They are lipid-based pastes or biscuits that have the same nutritional composition as F-100, but in contrast to the therapeutic milks they do not require preparation or refrigeration, have a long shelf life of up to 24 months and can be eaten straight from the pack. These products, together with strong community-based services, revolutionised the treatment of severe wasting. They enabled children who previously could only be treated as hospital inpatients, to be treated at home. This, in turn, reduced costs for carers, who no longer had to travel great distances to get to the hospitals. The result was an increase in coverage and a reduction in mortality rates.[23]

The first RUTF, called Plumpy'Nut®, was developed and jointly patented in a collaboration between Nutriset and the Institute of Research (IRD) in France, in 1996.[40] Up until 2007, the market was dominated by Nutriset. Since then, Nutriset has built a Network of Franchisees, known as PlumpyField. The PlumpyField network currently consists of 12 private sector or non-profit producers, based in high-burden countries, who produce Plumpy'Nut® and other Nutriset products, including RUSFs.[22] A number of other producers, independent of Nutriset, also produce RUTFs and RUSFs. These include Compact, Project Peanut Butter and Valid Nutrition. We identified 25 manufacturers of RUFs (see landscape map), m ost of which are located in LMICs with a high burden of wasting. The type of companies involved in the production of RUFs are all small companies or social enterprises. No large multinational companies were identified.

There is demand for a reduced-priced product, and for the identification of alternative formulations of RUTF, including non-peanut based formulas. However, costs have not changed much over the last 15 years: a carton cost $57 in 2008 and now costs $41. This is attributed to an increased volume of procurement and the number of suppliers, rather than to any innovation or change in the input costs of ingredients. The aspiration that local production would be a solution to reduce the cost of RUTF has not materialised, and locally produced RUTF remains at a higher price than imported RUTF.

PRODUCTS FOR MODERATE WASTING

Treatment systems to manage moderate wasting include the need for widespread screening and accurate diagnosis, referral and treatment. In some cases, treatment of MAM might be driven by behaviour change or dietary interventions such as in the PD-Hearth model, but product-based treatments are also important, particularly in humanitarian emergencies.

Ready-to-use supplementary foods (RUSFs) (similar to RUTFs) and fortified blended foods (FBFs) are both used for the management of moderate wasting. FBFs include supercereal+, which consists of corn, soy or wheat flours with added micronutrients and milk. Unlike RUSFs, FBFs need to be cooked with water before consumption.[25]

RUTFs have also been shown to be effective in children with moderate wasting[26–28], but although composition guidelines exist for the use of RUTF for the management of severe wasting (see below), there is currently no consensus on the best product and composition of supplements for treatment of moderate wasting.[29] There is also growing interest in the use of just one product to treat both moderate and severe wasting in one programme, but research into this is ongoing.

NUTRITIONAL COMPOSITION OF READY-TO-USE FOODS AND ALTERNATIVE FORMULATIONS

The most common RUTF, referred to as standard RUTF, consists of milk powder, peanut paste, vegetable oil, sugar and micronutrients. Ingredients in RUTFs can vary, but the overall composition should comply with the 2007 joint statement on community based management of severe acute malnutrition, [23] and the recently released WHO guideline on dairy protein content in ready-to-use therapeutic foods.[30]

The composition of standard RUTF has barely changed over the last 20 years and remains an expensive part of severe wasting treatment. Recently, alternative formulations have been tested in a number of trials.[31,32] The aim of developing alternative formulations is to reduce the price, increase the acceptability of the products in some contexts and reduce sugar content, at the same time as being at least as effective as standard RUTF. Alternative formulations can be based on locally available

ingredients, which reduces the need for imports. Many alternative formulations aim to reduce or replace the milk content, because it is expensive, and some replace peanuts with ingredients such as soy, chickpea, flour, lentils, oats and fish products. Other research has taken place, aimed at improving effectiveness by altering the fatty acid profile and also testing the benefits of pre- and probiotics.[31]

UNICEF recently worked directly with manufacturers to invest in the development of possible lower cost formulas, such as non-dairy alternatives. They are also currently trialling RUTFs with soy and chickpea. These could be expected to lead to cost-savings of 3%-5%. [24] UNICEF divides alternative formulations according to the following three categories:

1. **Renovations:** Renovations are compliant with the 2007 WHO joint statement, contain 50% of protein from dairy, but peanuts are replaced by other cereals, legumes or grains.
2. **Innovations:** Products that use a combination of cereals, legumes, grains and different sources of animal or insect protein, with reduced amounts of dairy protein or no dairy at all. These formulations do not comply with the 2007 joint statement.
3. **Novel:** Products that use a combination of cereals, legumes or grains, and added amino acids and/or different amounts of added vitamins and minerals. These formulations do not comply with the 2007 joint statement.[33]

New formulations with alternative protein sources, including plant-based proteins, have shown more promising results for the treatment of children with moderate wasting.[34] RUSFs based on non-traditional ingredients, such as fish, have also been explored.[35] More recently, there is also an interest in formulations aimed at improving the gut microbiota in children with moderate wasting.[36,37]

The number of alternative formulations identified through our work remains small. We only identified five (*Table 3*) and only one of these, the SMS-RUTF produced by Valid Nutrition and Ajinomoto, is classified as a “Novel” product.

More research and development into the effectiveness and cost-effectiveness of alternative formulations is needed, particularly in the “innovation” and “novel” RUTF product categories.

PRODUCTS FOR THE TARGETED PREVENTION OF WASTING

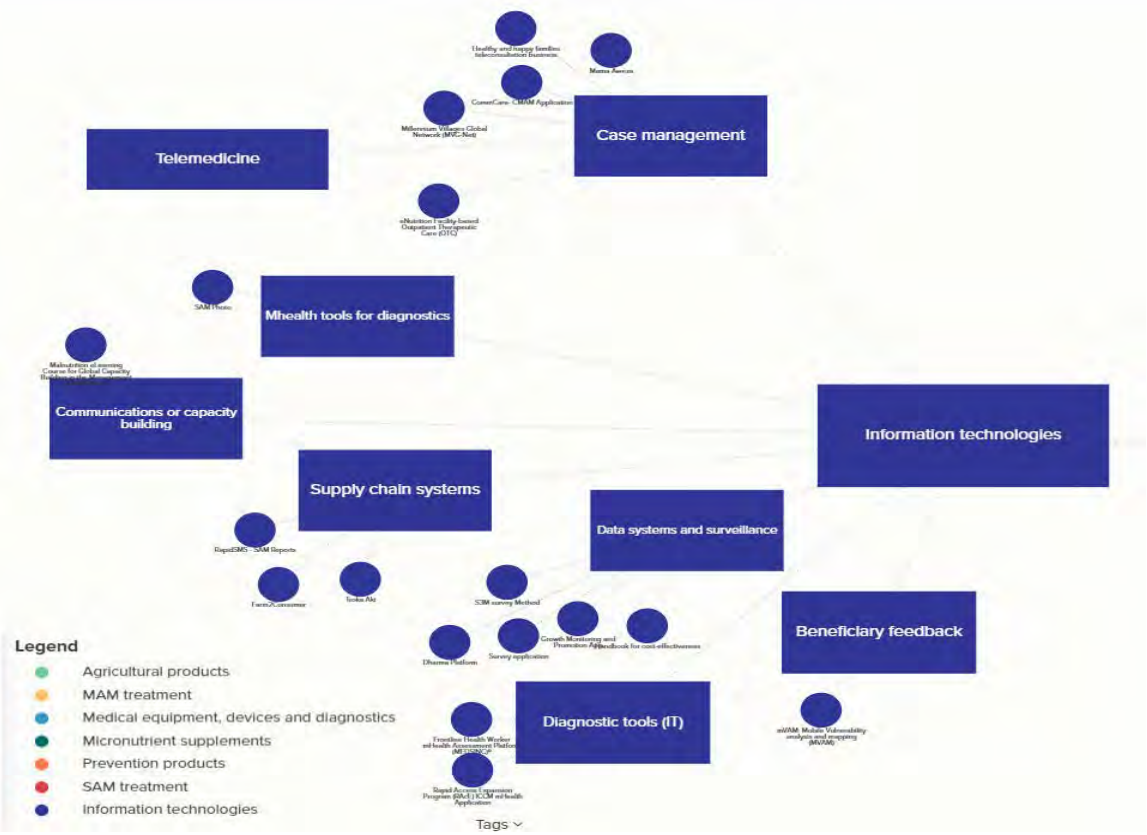
Various lipid-based nutrient supplements (LNS) have been developed, based on RUTF/RUSF formulations, modified in content and quantity for the prevention of malnutrition. These products are known as small-quantity (SQ)-LNS and have shown promising results when used as part of prevention programmes.[38,39] The landscape indicates that many of the RUTF producers also produce SQ-LNS.

LANDSCAPE OF TECHNOLOGIES

Out of 112 products and services that were included in the landscape, 20 were classified as information technologies and 4 as medical equipment devices or diagnostics. Of these, 7 were for case management (eg CommCare), 3 were products for data systems and surveillance, 3 were diagnostic tools, 3 were in the supply chain systems category and 1 was a product in the communications and capacity building category. *Box 2*, below, describes four of these products in more detail. Among them, 12 are at test, pilot or small-scale, 6 are listed as at global scale, but appear mostly to have a global distribution of pilots rather than 'true' scale, and only one product (IeDA by Terre des Hommes) has achieved national scale. Key factors crucial for achieving scale, as identified by GSMA, are reflected in IeDA's experience – namely an integrated approach, with government taking a strong position of leadership.[41]

Many of these solutions were identified through academic literature searches. Based on evidence of impact, it would appear that many pilots have achieved small to medium scale. It is likely that financing mechanisms and government-led leadership are bigger limiting factors to scale than a lack of supporting evidence.[42] This was confirmed by key informants and survey respondents. Valuably, the landscaping identified a number of IT solutions that have real scope, if there are adequate mechanisms in place, to enhance capacity in wasting programmes to achieve national scale.

FIGURE 10: ENLARGED VIEW OF INFORMATION TECHNOLOGIES



BOX 2: INNOVATIONS AND DIGITAL TECHNOLOGIES

ALEDIA: ALLIANCE FOR INTEGRATED E-DIAGNOSTIC

Action Against Hunger, Terre des Hommes and World Vision International have worked together on the conception of AleDIA: An alliance for the development of an integrated e-diagnostic solution to improve the quality of health services in low resource settings.43 The first product to be launched is an adaptable, digital solution, based on the integration of IMCI and CMAM protocols and existing mobile health applications, addressing the deadliest of childhood diseases and the management of acute malnutrition. It includes integration of SAM treatment algorithms for community care. Development is on-going, and it is currently being piloted in Mali. Creating coalitions of implementing partners is important to achieve scale, given the frequent failure of mHealth pilots to scale up when grant finance ends. AleDIA aims to draw upon the positive experience from the IeDA application by Terre Des Hommes, which is now scaled up nationally in Burkina Faso.

THE SAM PHOTO DIAGNOSIS APP®: USING ARTIFICIAL INTELLIGENCE FOR DIAGNOSIS

The Severe Acute Malnutrition (SAM) Photo Diagnosis App® uses an innovative artificial intelligence algorithm to diagnose SAM among children aged 6-59 months, based on an image of their left arm. SAM Photo can detect SAM faster, more easily and more reliably than current alternatives proposed for community-level use. The app's diagnosis is correlated with the standard indicators (WHZ and MUAC), and has been found to have increased sensitivity, relative to MUAC. A data-sharing system can enable rapid use of the information for surveillance and early warning systems, predictions, trends and association with context-specific or global factors.

PREDICTION OF FOOD AND NUTRITION SECURITY USING ARTIFICIAL INTELLIGENCE – GIS4TECH

Nutritional surveillance has always been a key component of readiness to address crises and increased risk of SAM/MAM, but until recently surveillance systems have relied on population surveys or existing national data. GIS4TECH, a spin-off company of the University of Granada (Spain), is developing a solution using big data, geographic information systems and related technologies (machine learning and artificial intelligence), for the analysis and treatment of large volumes of diversified data, which would otherwise have limited analysis. This prediction system enables collection and analysis of secondary information from multiple sources, and identifies areas of concern or risk to which greater efforts of nutrition care and prevention should be directed. This system does a monthly prediction of the food security situation in four countries in Latin America, using nutrition data sources and monthly agroclimatic analysis provided by satellite images. Results are periodically updated on an open-use web platform, and are in regular use by NGOs and partners: https://bi.gis4tech.com/ECHO-BETA

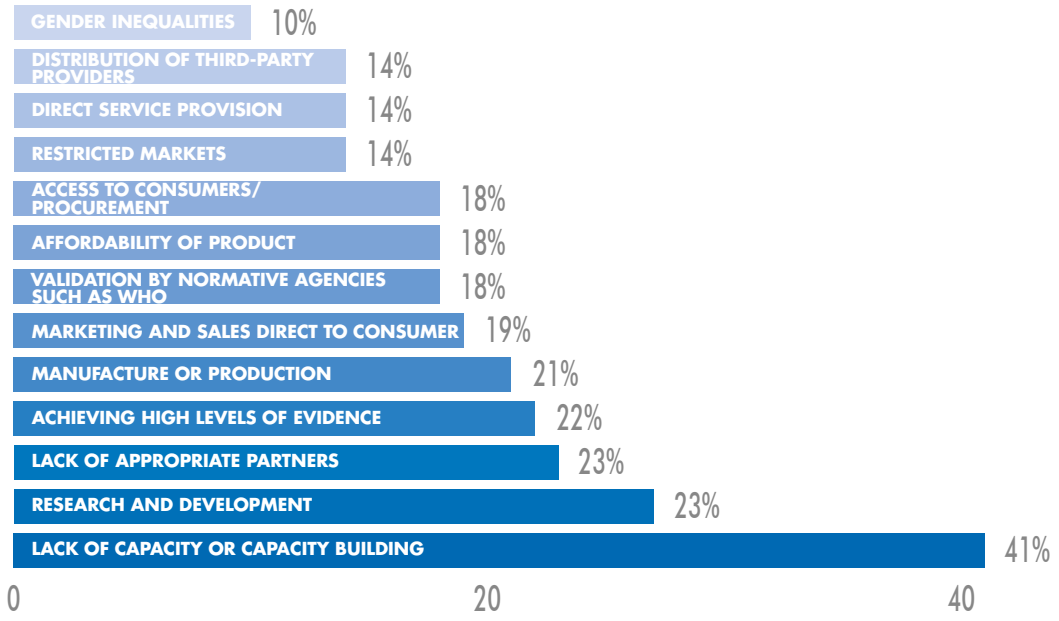
KACHE PLATFORM: A TOOL FOR E-CASH, BENEFICIARY MANAGEMENT, MONITORING AND REPORTING

Electronic mechanisms for cash transfers (e-payments) have the potential to improve the speed and scale of disaster responses, by improving monitoring and accountability, and by reducing opportunities for corruption. The Kit for Autonomous Cash Transfer in Humanitarian Emergencies (KACHE), built on Red Rose ONE Solution, enables users to provide electronic cash transfers in emergencies where no suitable infrastructure is available, and has now been adapted to support delivery of services, cash or product, in any type of context [44]. It offers rapid beneficiary registration and distribution of one card-one beneficiary, promotes data collection and analysis, and enables real-time tracking of humanitarian response performance. Solutions of this type have the scope to pre-identify families at greatest risk of having children become wasted during crisis and can easily be linked to voucher systems and cash transfers, for targeted prevention.

BARRIERS TO FACILITATING INNOVATIONS AND SCALE-UP

Key challenges or bottlenecks identified by survey respondents to achieving more innovations and taking innovations to scale, were lack of capacity, lack of appropriate partners, access to consumers, restricted markets, the affordability of products, achieving high-quality products, and sufficient levels of evidence (see *Figure 10*). These challenges are discussed in more detail below based on information obtained from the survey, the literature review and key informant interviews.

FIGURE 11: CHALLENGES OR BOTTLENECKS IN ACHIEVING SCALE



LACK OF CAPACITY AND CAPACITY BUILDING

Lack of capacity and capacity building was mentioned as the most common challenge to greater innovation and taking innovations to scale, mentioned by 41% of respondents (n=46) (Disaggregated by sector: 42% of academic respondents, 59% of NGO or charitable entity respondents, 40% of government respondents, 34% of private sector and 45% of UN respondents). However, it was not clear if this was referring to a lack of capacity in target countries and governments or in their own entities. One interviewee said a lack of capacity for mHealth installation and a lack of interoperable government-mandated platforms and management were reasons why pilots failed.

ESTABLISHING PARTNERSHIPS

Challenges were noted in the establishment of partnerships that support product innovation and development – with involvement often limited to financial donations or goods in kind. Almost a quarter (23%, n=26) of survey respondents mentioned identifying appropriate partners as a key challenge. (Disaggregated by sector: 42% academic entities (n=3), 37% (n=10) of NGO respondents, 27% (n=3) of UN respondents and 16% of private sector respondents (n=9).) Furthermore, key informants from the UN and NGOs working closely with the issues of wasting noted that emerging technologies such as mHealth, which could enable public health systems to integrate technologies, are rarely brought to scale, due to fragmentation of NGO efforts, lack of strong public-private partnerships and lack of government leadership.

RESEARCH, DEVELOPMENT, EVIDENCE AND VALIDATION OF PRODUCTS BY NORMATIVE AGENCIES

A total of 20% (n=22) of respondents identified R&D and 9% (n=10) identified achieving high levels of evidence, as key challenges to innovation and scale-up. Developing high-quality products was mentioned as a challenge by 13% (n=15) of respondents.

The issue of sufficient levels of evidence was raised, particularly in the context of alternative formulations of ready-to-use foods. As mentioned above guidelines exist for the micronutrient composition and percentage of protein from milk. One producer expressed frustrations about the requirement for RUTF to have 50% protein coming from milk. Milk is one of the more expensive ingredients, and a range of alternative formulations are being tested with the primary objective of cost reduction – in order to increase the number of children that can receive treatment. While some milk-free formulations were shown to be inferior to the standard product, a formulation developed by Valid International, in partnership with Ajinomoto, which uses amino acids rather than milk, has shown no inferiority in terms of recovery and superiority in terms of correcting anaemia.[45] However, this evidence was not deemed sufficient to change the recommendation of 50% milk protein content in the most recent guidelines. Survey respondents raised the importance of a better understanding of how much evidence is enough evidence and the process by which new evidence is included in RUTF guidance. 16% (n=18) of survey respondents mentioned the validation of products by normative agencies, such as WHO, as a major challenge to innovation and scale-up. Other respondents expressed concerns that slow approval of new formulations and the lack of clarity over how much evidence is required hamper innovation and investment from the private sector in novel formulations, and will slow progress towards a greater number of children receiving treatment.

One respondent mentioned that the international nutrition sector is conservative and that, beyond RUFs, innovations more broadly can be blocked by UN agencies, NGOs and donors. On information technologies, one key informant reported that Ministries of Health are becoming increasingly sceptical about allowing new innovations: "*There is scepticism in terms of what can be done at scale. Ministries of Health are taking a more structured approach to appraising how apps are developed and tested, but they are all at different stages of developing interoperable platforms.*"

RESTRICTED MARKETS AND ACCESS TO CONSUMERS

Standard RUTFs are the primary product used for the treatment of severe wasting. UNICEF is the main buyer for RUTF, currently procures about 75-80% of globally funded RUTF. This equates to roughly 49,000 metric tons which is buying enough to treat about 3.5 million children.[24]

Among survey respondents, 14% (n=16) and 18% (n=20) identified restricted markets and access to consumers, respectively, as a challenge. One respondent stated: "*The market is dominated by one customer (UN) and one supplier is a major issue for investors; as is the inconsistent (and irrational) regulatory situation and approach*". The dependency on a small number of producers and few customers is indeed risky and very unusual.[40] The biggest gap in the market therefore appears to be high-burden country public health authorities as purchasers and distributers of product through national health supply chains. A critical goal of the UN Global Action Plan is to advocate for greater investment from domestic health budgets into purchasing RUTF, including via local markets. The extent of public investment in the UN GAP operational plans is yet to be published.[46]

LACK OF FUNDING

A lack of funding was mentioned by 7% (n=8) of respondents as holding back research and development, testing of innovations at scale, marketing innovation and scaling up of innovations and treatment programmes in general. For example, when it comes to products for the treatment of wasting (even standard products), several respondents pointed out that aid budgets are limited and short term, and that alternative funding mechanisms should be sought, eg through the private sector or government. While some respondents mentioned that the private sector could have a role in funding certain projects, to date the companies involved in, for example, RUTF production are mainly smaller social enterprises that require funding or business grants to develop and test their ideas. Getting access to business loans can be a problem – in particular in developing countries, where interest rates may be higher. [40] Even where funding is available, the type of funding is also a problem. One key informant reported that for mHealth innovations, there is adequate funding for solutions to be developed and piloted, but usually not sufficient to take these innovations to scale: "*We can only do [the testing and piloting of innovations] on a grant to grant basis, but you cannot drive an innovation through to maturity only on grant funding*." As an example, a key informant from World Vision described the CMAM app developed for integration into CommCare. This app was successfully piloted using grant funding, but not taken to scale or integrated with a health management information system, because of a lack of technical knowhow, financing and political will, as well as scepticism around adopting something external.

PROFITABILITY

Respondents cited the issue of profitability and commercial sustainability as a challenge for increased private sector involvement. According to one respondent:"*Nutritious products are costlier to produce. It requires innovation and creativity to base a business on them*". In contrast, one NGO respondent expressed concerns about having private sector involvement in community health, given their drive for profit. Seeking investors to support the scale up of products and technologies, is hampered by the limited market and perceived lack of returns or profitability. As such, looking to private sector to work alone would very much limit their interest to products which are patentable and ensure recovery of investments. This is, however, something that PPPs could achieve – at the same time as succeeding in reducing the cost of the product.

PATENT

In the past, the Plumpy'Nut patent, held by IRD and Nutriset, has been seen as unhelpful for innovation and efforts to reduce the price of RUF. None of the respondents mentioned the patent as a challenge to greater innovation, probably because the patent has now expired in a number of countries and is due to expire in the remaining countries in 2021.[47]

SUCCESS FACTORS OR ENABLERS FOR DEVELOPMENT AND SCALE

When asked about factors that have successfully facilitated taking innovations to scale, local and international collaboration between the private sector and NGOs or academia emerged as a key theme. Connecting expertise from different sectors can make innovations possible and improve manufacturing efficiency. In fact, one respondent pointed out that without the collaboration between academics and the private sector 20 years ago, RUTF might not exist today.

Other success factors mentioned included capacity building; human resources with the necessary technical capacity; early engagement with partners, communities and end-users; product quality; sufficient data on effectiveness; as well as an enabling environment and demand. In addition, four survey respondents pointed out the importance of sufficient funding for research and development as well as production and marketing of innovations. Surprisingly, the importance of government commitment to support scale up was highlighted by only one key informant and related to technology scale-up. IeDA, the mHealth solution scaled-up in Burkina Faso by Terre des Hommes and the Ministry of Health, was made possible through strong government leadership. Similarly, in the case of Ethiopia, successful scale up of CMAM is linked to both the government's capacity and interest to scale CMAM through existing health systems, and through PPPs investing in local RUTF production.[48] A study looking into imported versus local RUTF production suggested that expansion of local RUTF producers into other product categories can enable them to reach a larger market and sustainable scale. Furthermore, a favourable tax environment, assistance in lending/investment loans, consistent forecasts from buyers, investment in reliable input supply chains, and local laboratory testing, have all been identified as success factors for local production and enhancement of local markets.[49] One paper suggested that sustainability of local RUTF production is contingent on purchases by social welfare programmes, supported by government and NGOs.[50]

In contrast to RUTFs, which have been procured largely by donors and distributed free at the point of care, preventive nutrition products are unlikely to follow the same path[51], and there is much lower interest from governments in spending domestic funds on them. A critical factor for stimulating markets will therefore be promotion of consumer purchasing. Despite their benefits, preventive products tend to suffer from low household-level demand and high price sensitivity.[52]

CHALLENGES AND OPPORTUNITIES IN PRIVATE SECTOR PARTNERSHIPS

Views on the value of working with the private sector differ between actors. The interviewed donors and key informants from academia did not cite private sector partnerships as a priority. For NGOs and UN agencies, the level of interest in partnering was mixed: minimal interest from some, high interest from others.

One respondent from a UN agency mentioned that, to date, private sector contributions to wasting have been mainly in the form of donations – either in cash or in the form of RUTF or micronutrient supplements – but that these have tended to be small compared to government and individual donations. In line with this, we observed that the majority of survey respondents were from smaller companies, making relatively small contributions to childhood nutrition (*Table 2).* Given that our survey sample was largely from smaller companies, this may or may not indicate a lack of interest in the topic by bigger companies.

Some stakeholders noted resistance to greater private sector engagement within the nutrition community, likely due to mistrust and the negative influence of the food and beverage (F&B) industry in the sector. One respondent from a social enterprise expressed frustrations:

> *"The UN and humanitarian organisations say they want to encourage the private sector…but their behaviour and practices have the opposite effect…It would appear that it is the private sector's money that is welcome but not the massive value they can bring through innovations, R&D, logistics, skills, etc. Both intellectual property and profit are seen as bad."*

One UN respondent mentioned that they are mostly approached by the F&B industry for partnerships on nutrition interventions, but are aware of risks and challenges in working with the sector:

> *"Whenever we are approached by a private sector partner for nutrition-type intervention, it would tend to be food and beverage companies aiming to benefit from the halo effect of associating with our brand and offsetting what their brand footprint might be. We have to draw a line, so as not to undermine our ability to advocate to those companies about their marketing behaviours… We have not yet found the sweet spot of compatible partnerships for nutrition outcomes in the sector. We will dialogue with any company if the outcome for children is worth it. We won't have any branded partnerships, and we engage for the purposes of advocacy for healthier products and for marketing practices that do not target children with unhealthy products. We will not take any funding, as this would undermine our advocacy."*

For some partners, their challenge to engaging the private sector was that their organisational framework and regulations prevent engagement with private sector entities in nutrition. For businesses to engage with global nutrition actors, and to attract large enterprises into the space, defined principles of engagement are needed. These would need to include a vetting process or other way to buffer the impact of conflicts of interest that directly damage NGOs. This would not replace individual agency due diligence, but it may create a more conducive environment for engagement between nutrition actors and the private sector.

In contrast, some survey respondents recognised that innovations and private sector partnerships could indeed address some of the challenges identified above. Three respondents noted the significant contribution that the private sector could make given their expertise in food processing, production and research and development, as well as capacity building.

Respondents also noted that private sector contributions are not limited to innovations in food products, but also with regards to surveys, surveillance, monitoring and other technologies.

One respondent called for breaking the inertia of the sector:

> *"The appalling progress (no innovation in RUTF in over 20 years and less than 20% of SAM children needing treatment being reached) is self-evident, yet there is utter inertia. Against this, there is a massive opportunity to harness the capability of the private sector to sort both acute and chronic malnutrition (including stunting). With vision and enlightened engagement this can be mutually beneficial for business and the consumers (the ultimate customers)."*

One survey respondent pointed out that the private sector, through collaborations with NGOs or government, can make commodities available and affordable. In contrast, another respondent mentioned that some smaller companies may require support from the government to facilitate the production and make them affordable.

The private sector plays an important role in local production of RUTFs, and this aspect may be underexplored. Alternative formulations, local production, and greater innovations and competition, may lead to further reduction in cost and therefore in achieving scale. Local production began in response to growing demand for products, and a number of ready-to-use food producers are now established in high-burden countries. Local production does not necessarily make products cheaper given the smaller scale and the higher cost of ingredients. Furthermore, some ingredients (such as the vitamin and mineral mix) require importing, and these are subject to import taxes, while the finished RUTF products are usually exempt.[33] Additionally, the quality control required to ensure product safety increases costs, as it can be difficult to find reliable laboratories. In some cases, samples have to be sent abroad for testing.[40] However, there are other advantages to local production, such as the impact on the economy and reduction in carbon footprint.[47]

Survey respondents and key informants mentioned that the private sector could potentially make an important contribution to transport, logistics and supply chains, as they have infrastructures in place and expertise that could benefit the health sector as a whole. UNICEF is exploring a partnership with the private sector on supply chain systems and, with the aim of improving efficiency, is working with the government and local support towards a maturity model of supply chains for the health system as a whole. This is crucial, as supply-chain interruptions are still frequently reported.[47] Finally, a key informant from the UN mentioned that the private sector could play a role in information and data management and in supporting governments to run nutrition systems and manage the data.

DISCUSSION

Wasting remains a major public health issue, particularly in several countries in Africa and Asia, affecting a total of 45 million children at any one time.[3] This number has barely changed over the past decade and less than 20% of children are receiving the life-saving treatment they need. To increase treatment coverage and prevent the consequences of wasting, some game-changing solutions are needed. Our study explored the role of the private sector in prevention and treatment of wasting and results indicate that their levels of contribution are very low. Private sector CSR focus and in-kind and cash contributions amount to only a fraction of what they could be, and only 9% of private sector actors surveyed had made a pledge to the N4G Summit.

CHALLENGES FOR ENGAGEMENT OF THE PRIVATE SECTOR IN WASTING

To date, overall, private sector engagement for nutrition remains a relatively new issue, and results from the survey and the key informant interviews suggest that it is perceived differently by different actors. Indeed, mistrust (around potential conflict of interest, linked to promotion of unhealthy foods and promotion of breastmilk substitutes) has characterised the relationship between global nutrition actors and the F&B industry – leading to an impasse in engagement, despite willingness on the part of private sector entities to contribute more. Many NGOs and UN agencies are risk averse and, while efforts have been made to advance approaches to engagement that can manage and mitigate risks, they have not so far resulted in substantive change. The caution, however, is often well-founded, leaving the onus squarely on private sector partners, and particularly the F&B industry, to 'clean-up' their acts. This is especially the case regarding compliance with marketing restrictions and being part of the solution (creating nutritious foods for children, that are affordable for all families including those on low incomes). Movement on both sides, and strong regulation, might be required to break the current impasse.

In considering the engagement of the private sector and its potential contribution to wasting, it is important to recognise that the private sector is a very heterogeneous group: It encompasses all for-profit businesses that are not owned or operated by the government and ranges from individual farmers to large multinational companies. It includes financial intermediaries, multinational companies, micro-, small and medium enterprises (MSMEs), cooperatives, individual entrepreneurs, and farmers who operate across both the formal and informal sectors.

While non-private-sector survey respondents particularly voiced concerns about engagement with the F&B sector and large multinationals, engagement with smaller companies and social enterprises was less of a concern. There is growing recognition that, in order to improve the development of products, services and technologies that will benefit outcomes for wasted children, there is a need to identify how to engage with the private sector in ethical, sustainable and non-controversial ways, while at the same time taking precautions to effectively manage potential risks and define principles of engagement.

Wasting has long lacked the investment it needs to address treatment and prevention – both by the public and the private sector. Wasting mainly affects children from the poorest families living in conflict-affected areas or urban slums. These groups are often politically disenfranchised and not viewed as a private sector 'market'. They are reached through humanitarian and social protection systems, but this has not been sufficient to prevent and treat child wasting. Low political will and sustainable financing models may be disincentives for both public and private sector investment.

OPPORTUNITIES

There is now growing recognition that global development challenges are increasingly multi-faceted and complex, requiring new collaborative and multi-stakeholder alliances to finance and implement humanitarian and development actions. This recognition has been bolstered by pressure on public budgets for development, and dwindling resources for nutrition from donors. This understanding has come at a time when there is increased competition in emerging markets in the global South, with many governments increasingly resorting to a mix of economic diplomacy and aid policies. Together, private sector actors can work with NGOs, civil society and governmental donors, at international, national and local levels, to create innovative programmes and solutions with greater effect.

The role of the private sector has been strengthened and structured by the SUN Movement, in countries that adhere to it.[54] SUN Movement countries are supported to establish a private sector network, under the leadership of the government as a focal point, to engage with UN networks, civil society and donors in a coordinated and ambitious commitment to nutrition.

Furthermore, the role that the private sector could play when it comes to capacity development, research and development, technology and data systems, was acknowledged. It was pointed out that the collaboration between academia and the private sector was essential in the development of RUFs for the treatment of wasting. The private sector could also contribute to the fight against hunger by providing donations in cash or kind. One partner mentioned that their organisation is targeting private foundations and institutions to fund evidence-generation around cost-effective and innovative approaches to wasting prevention and treatment, agriculture programming and cooperative development, and data visualisation. However, most of these are pilot projects at small-scale and not ready for large-scale implementation. Another key informant noted that, to date, contributions in cash have been rather small compared to those received from bilateral donors.

KEY INITIATIVES

Our work has demonstrated that the involvement of the private sector in nutrition is mostly through the development and production of RUF and, to a lesser extent, technology. In terms of technologies, key initiatives include SAM photo diagnosis, digitisation on wasting management, AleDIA mHealth (SAM+IMCI), improved diagnostic tools using mobile phones and other small technological devices that improve accuracy of diagnosis of wasting, stunting, and anaemia. Key informants mentioned that there is also a role for smaller-scale, in-country, digital companies to provide high-level digital services, and also scope for larger multilateral companies to set up technical service providers in LMICs (for data systems design, cyber security, data management, etc).

ROLE AND OPPORTUNITIES FOR THE PRIVATE SECTOR IN RUF PRODUCTION

One of the most attractive ways for the private sector to become involved in nutrition is through finding innovative ways to improve products in terms of cost and effectiveness.

The type of private sector companies involved in the production of RUF are mainly small companies or social enterprises. This may be linked to ethical concerns around engaging with large F&B companies, the lack of profitability, and/or because in the past the Plumpy'Nut patent prevented larger companies from producing RUTFs. Since 2010, Nutriset has allowed certain local producers in the 25 African countries where the patent is in effect to produce Plumpy'Nut via their patent-usage agreement (for a fee set at 1% of turnover earned by the sale of RUFs).[40] The patent-usage agreement was mostly limited to producers in high-burden countries and Edesia in the US, and was meant to protect smaller producers while ensuring quality products. There have, however, been concerns that the Plumpy'Nut patent has limited global RUTF supply and prevented RUTF innovation and price reductions.47. However, the patent for Plumpy'Nut® is now either expired (in the US and Europe) or, in other countries, is nearing expiration.[47]

The cost of RUTF per child ranges from US$30-$72, which makes up somewhere between 6% and 56% of the cost of severe wasting treatment.[55–61] Price reduction could be achieved through alternative formulations, local production or by greater competition. Our results show that little has been done in terms of alternative formulations, particularly when it comes to "novel" alternative formulations, and respondents have cited issues around the lack of clarity as to how much evidence is needed before innovations can be included in guidelines and scaled-up. Furthermore, lack of funding for testing innovations, together with the fact that only small companies or social enterprises with limited capital produce these products, has been seen as an issue. Enabling small to medium enterprises to access funding for R&D would be one way to improve innovation.

It is unclear, at present, whether the end of the Plumpy'Nut patent will lead to an increase in the number of large multinational companies becoming involved in RUF production or even whether this should be encouraged. Larger companies have more funding and facilities available for R&D in testing and developing alternative formulations and could potentially produce RUFs at lower cost. However, it is not known whether these cost reductions would be sufficiently large to be truly game-changing. Firstly, the bulk of the cost of treatment, 50%-94%, is linked to programming costs rather than RUTF.[55–61] Secondly, the costs of RUTF include production and ingredient costs, in which the latter accounts for about 60%-72% of the total. The most expensive ingredient is dairy, which on average is responsible for 25% of the costs.[30] Compared to standard RUTF, price reduction of RUTF formulations without dairy (as quoted by suppliers to UNICEF) has been modest: potentially 5.8% when produced locally or 4% when produced offshore.[30]

Furthermore, while the involvement of larger companies might drive cost down, this could also come at a cost. Involving larger producers would make it difficult for smaller local producers to remain competitive. To date, local production has not led to a large reduction in price. According to UNICEF, the cost of procuring RUTF from local suppliers, both franchisees and independent sellers, is 12%-14% higher than from international suppliers.[24] However, other advantages of local production need to be considered, such as the impact on the economy, the impact of the quality of the raw ingredients from local farmers, fostering entrepreneurship, building capacity reduction of carbon footprint, and more sustainable access to supplies for the treatment of wasting.[40,62,63] As the sector is working towards governments being in charge of managing CMAM funds, it may be easier for them to procure RUTF locally than from offshore producers.[40]

Furthermore, although the market is not very diverse (according to UNICEFs Market Outlook, published in March 2021), production capacity currently exceeds funded demand – with the current procured demand accounting for only 56% of total production capacity – and would be sufficient to respond to increasing treatment coverage of children with severe wasting.[24] One option to reduce treatment cost may be to focus on making local production cheaper. Costs of local production could be reduced by linking farmers more directly with RUF producers, which in turn could improve their yields and quality of raw ingredients, improving the process of quality testing and verification, and reducing import tax on raw ingredients for RUFs.[40] One key informant, from UNICEF, mentioned that UNICEF tries as much as possible to buy from local producers and tries to avoid bringing in international companies, and stated: "There is a shift towards decolonialisation and focusing on local suppliers and national NGOs. But we need more efforts to support local production and diversify the market of local private sector producers."

While reductions in the price of RUTF could be achieved either by changing recipes, reducing milk content, reducing costs of local production or involving larger producers, the impact on overall treatment cost is unlikely to be enough to sufficiently scale-up. Greater impact on overall treatment costs might be achieved by reducing the amount of RUTF needed per child, either by using reduced dosage protocols or employing programming approaches such as family MUAC and the involvement of community health workers – to enable earlier detection of malnourishment in children. As an example, the ComPAS study, which tested a combined and simplified protocol for treatment of moderate and severe wasting with one product (RUTF) and a simplified dosage, found that overall treatment costs could be reduced by 12% (from 1,041 to 918). The amount of RUTF needed to cure a child from severe wasting was reduced by 29% in Kenya and 36% in South Sudan.64 Similarly, another study in Burkina Faso found that RUTF costs could be reduced by 30% with a reduced dosage protocol, compared to a standard protocol with non-inferior recovery rates.[55] Nevertheless, alternative formulations should continue to be explored, to improve their acceptability and effectiveness, as well.

CONCLUSION

In conclusion, to date the involvement of the private sector in relation to wasting is mostly in the development and production of ready-to-use foods and, to a lesser extent, technology. The majority of private sector entities acting in this space are small to medium enterprises and the contribution of multinational companies appears to be very minimal.

Contributions through corporate social responsibility, which occurs mostly via charitable donation, is small relative to the capacity of the private sector to contribute. Commitments to the N4G Summit are also a major gap, and it is recommended that a next step for both the SUN Business Network and the UN Global Action Plan for Wasting make concerted efforts to enhance these commitments by advocating for greater support in the areas of capacity building, technologies, research and development.

BOX 3: KEY ISSUES IN INCREASING ENGAGEMENT OF THE PRIVATE SECTOR IN WASTING

1. Key bottlenecks in achieving more innovations and scale were: lack of capacity, lack of appropriate partners, demand, restricted markets, achieving affordable high-quality products.
2. While market diversification has been achieved for RUF production through the emergence of SMEs and social enterprises, with many based in LMICs, this has not resulted in a decrease in cost of RUF, or an increase in markets or demand beyond humanitarian settings.
3. Greater efforts to STIMULATE LOCAL MARKETS in LMICs, specifically through government purchasing in high-burden, non-humanitarian settings, is one of the major shifts needed, and should be a focus of advocacy for the UN Global Action Plan for Wasting. This is both in terms of purchase of RUFs and also engaging local business in supply chain, logistics and technologies.
4. Product innovation for the development of alternative RUTFs by SMEs and social enterprises is restricted by their capacity to achieve levels of evidence, and lack of research funding or partners. Market dominance by one purchaser may be a major issue for investors.
5. Perceptions of the value of private sector partnerships is mixed: fear of conflict of interest dominates this relationship. Regulations prevent partnership with the F&B sector, and intellectual property or profit are viewed in a negative light.
6. Existing frameworks for partnership are not fit for purpose: the “sweet spot of compatible partnerships for nutrition outcomes in the sector” is yet to be identified. To attract investment in this space, any such framework or mechanism would need to be driven by donors and governments to enable ‘risk-sharing’ and maintain the integrity and interests of all parties.
7. The value of private sector partnerships in terms of innovations, R&D, logistics, skills, and capacity to scale up technologies, is largely underexplored.

The number of public-private partnerships that exist was surprisingly low. The conflict of interest between global nutrition actors and the private sector is likely responsible for this gap.11 Comparing this to the pharmaceutical industry is relevant: multinational pharmaceutical companies are indeed the driving force behind product innovation, having the best capacity of resources to do so. Where public-private partnerships have in the past been highly productive in developing products that are in high demand for high-burden conditions within the global South (eg for neglected tropical diseases, HIV, Malaria), this has been through leveraging private sector resources for global goods.

Industry actors clearly felt concerns about partnerships with the F&B sector, despite an acknowledgment about the production of RUFs. The recipe of RUTF has barely changed over the last 20 years and, despite the fact that the price of RUTF has decreased from US$57 per carton in 2008 to US$41 in 2020, it remains an expensive component of severe wasting treatment.[24] Reducing the cost of RUTFs through new formulations, local production and smarter regulation of the product is critical to achieving greater scale. The recent lifting of the patent on RUTF held by Nutriset has given the opportunity for small and medium enterprises and social enterprises to step into this space and begin to produce and distribute into local markets. However, as some of the participants clearly reflected, the access of SMEs and social enterprises to funding for high-level R&D and even cost-effective mass production, presents a major barrier to game-changing innovation in therapeutic food costs. In addition, efficiencies around product financing, dosage, treatment protocols and supply chain could contribute to cost-savings and optimisation of current RUTF supplies.

Other gaps mentioned, that could be addressed by innovations and the private sector, include: supply chain, last-mile service delivery, data management using mobile technology, remote training and coaching, diagnostic tools, coordination of dashboards for improved data sharing and visualisation, improved food quality and safety.

Overall, the involvement of the private sector in improving outcomes for wasted children remains largely underexplored. There is a need to reflect, from a systems perspective, on what the barriers are to scaling efforts in wasting prevention and treatment, and whether the private sector could be engaged in more meaningful, ethical, sustainable and non-controversial ways to improve the development of products, services and technologies.

CALL TO ACTION

In summary, in this study we have explored the private sector entities that are currently engaging with work in wasting. We have identified a number of areas for global nutrition actors and the private sector to explore together. However, they need to work very closely with governments and donors – who appear to be critical stakeholders in bridging the conflicts of interest that are currently preventing collaboration between private sector and civil society organisations.

RECOMMENDATIONS FOR ALL ACTORS:

1. A major initiative is needed to break through the current state of impasse, and it should focus on key game-changers: in costs of therapeutic foods and nationally scalable technologies.
2. There is a need to create a space for dialogue and build a more conducive environment for engagement. Governments, bilateral donors, UN agencies and larger foundations are key players to bridge that gap and 'buffer' the conflicts. A new framework for partnering is required; one that is ethical, sustainable and puts the interests of children ahead of those of individual organisations.
3. Recognise the potential for eHealth, telemedicine and the full range of mobile health technologies to improve the accuracy, efficiency, responsiveness, quality and coverage of treatment services for all forms of malnutrition.

GOVERNMENTS AND POLICY MAKERS IN HIGH-BURDEN COUNTRIES:

1. Support market diversification and local solutions, and address challenges to taking products to markets by creating a more enabling environment, local marketing, favourable tax conditions, access to investment and low/no interest loans.
2. Invest in a progressive shift towards domestic purchasing of RUTFs and integration of wasting treatment within the health system, not just as a stand-alone humanitarian intervention or parallel system.
3. Invest in national capacity for technology solutions in the health, nutrition and food security area, installing interoperable platforms that maximise the possibility for iterative informatics architecture to be built over time.

DONORS:

1. A major and intentional funding effort is needed to stimulate both R&D activities and the scaling of solutions through local small and medium enterprises, in order to enable a competitive market environment.
2. Prioritise funding for establishing nationally-owned interoperable platforms for health systems that can be flexibly enhanced by innovations.
3. Facilitate/incentivise the localisation of products and service solutions to stimulate local enterprise in LMICs in the areas of technology, local production, logistics and supply chain.
4. Work closely with investors, with the aim of reducing the risk of investment in this sector and incentivising more diverse funding sources.

PRIVATE SECTOR ENTITIES:

1. Be prepared to work with UN, WHO and NGOs to improve wasting-related products and marketing practices according to sustainable, ethical standards for the industry, abiding by international codes of conduct in relation to products for children.
2. Consider the identified gaps to make meaningful, ethical commitments to Nutrition for Growth.
3. Explore possibilities for partnerships and CSR activities to work with NGOs and UN agencies, to facilitate innovations moving from pilot to scale.
4. Work within multi-stakeholder partnerships, to facilitate 'risk-sharing' of R&D efforts.
5. Partner with small-scale enterprises in the global South to facilitate capacity building around supply chain, technologies and local production.

SMALL TO MEDIUM BUSINESSES AND SOCIAL ENTERPRISES:

1. Continue to invest in local solutions and alternative approaches.
2. Work together to advocate for your needs for R&D and for access to markets facilitated by governments and donors.

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ANNEXES

ANNEX 1: SURVEY TOOL

LANDSCAPE ANALYSIS OF PRIVATE SECTOR INVOLVEMENT IN ENDING CHILD WASTING: INNOVATIONS, PRODUCTS AND CONTRIBUTIONS

BACKGROUND

In 2015, the Sustainable Development Goals were established including a bold commitment to eliminate all forms of malnutrition in the world by 2030. Specific targets set at the World Health Assembly included reducing the global proportion of children suffering from wasting to below 3% by 2030. Today, globally and in many countries, we are far from reaching that target. Before the COVID-19 pandemic, it was estimated that roughly 50 million children under the age of 5 suffer from wasting at any point in time, and less than a quarter have access to treatment. Since 2020, the COVID-19 pandemic is exacerbating that situation, may reverse progress on wasting reduction in some regions and even increase total cases.

The Scaling up Nutrition (SUN) movement has long identified public-private partnerships as an important area to progress global nutrition goals and has identified missed opportunities to expand that potential. There are many ways that private sector actors could contribute to the achievement of reduced child wasting through charitable giving, but also through partnerships, innovating through research and development, capacity building and scaling up identified services and products. Many of these contributions remain underexplored, in particular in the domain of contributions to the targeted prevention and management of acute malnutrition/ wasting in children. This survey is being conducted by Action Against Hunger UK and the Global Alliance for Improved Nutrition (GAIN) to identify the spectrum of private sector engagements in nutrition identifying those most promising contributions to targeted prevention and management of acute malnutrition/wasting and related child mortality. The survey has the following key objectives:

1. Identify private sector entities with innovations, products, or services relevant for the targeted prevention and management of acute malnutrition/ wasting in children in terms of size, type, scale and scope of each of these private sector solutions, or initiatives as well as the type of partnership. (Section 1, 2 & 3).
2. Estimate the value of private sector contributions to the area in terms of the value of corporate social responsibility and direct support (Section 3).
3. Identify and map the innovations, products, or services that can be or are currently being applied to targeted prevention and management of acute malnutrition/ wasting in children (Section 4).
4. Identification of the gaps and challenges experienced by the private sector actors that prevent an expanded contribution in this area.

The data you provide will be included in a report on the subject and feed into an interactive landscape of promising 'innovations and private sector solutions' hosted on the State of Acute Malnutrition website and possibly elsewhere. It is hoped that the information collected will inform future dialogue between 1 governments, non-governmental organisations and the private sector.

* 1. USE OF DATA AND GDPR

By participating in this survey, you are agreeing for the information to be used for the purposes of this project only, and for summary data published in a report. The data will not be made available to any third parties. No individual respondents' names or contact details will be published in any location or shared with any other party. Information provided in sections 1-3, and 5 will be anonymized and presented as summary statistics only, with no identifiable links to any single company or individual response. Information provided in section 4 regarding current information about specific projects, innovations, products, or services will be listed by project/ innovation/product and company name and published on the State of Acute Malnutrition website and possibly elsewhere. You retain the rights to have this information removed at any time without prejudice. If you have any questions related to this survey, please email info@acutemalnutrition.org.

BY AGREEING TO THE BELOW YOU ARE INDICATING:

- Consent to publish data for Section 4 by name of the company in reports
- Consent for specific projects, innovations, products, or services to be listed by name in an online landscape and report
- Consent for the project team to contact you for any clarifications related to the data submitted

□ Agree

□ Disagree

SECTION 1: CONTRIBUTOR INFORMATION

1.1. Name of contact:

1.2. Email address:

1.3. Name of company/organisation:

1.4. Sector

□ Private sector entity (including social enterprise)

□ NGO or charitable entity

□ Academic entity

□ UN

□ Donor

□ Other

SECTION 2: PRIVATE SECTOR ENTITIES – TYPE AND SIZE

2.1 WHICH OF THE FOLLOWING GLOBAL INDUSTRY CLASSIFICATION STANDARDS (GICS) INDUSTRY GROUPS MOST ACCURATELY DESCRIBE YOUR BUSINESS?

□ Automobiles and Components

□ Banks

□ Capital Goods

□ Commercial and Professional Services

- ☐ Consumer Durables and Apparel
- ☐ Consumer Services
- ☐ Diversified Financials
- ☐ Energy
- ☐ Food, Beverage, and Tobacco
- ☐ Food and Staples Retailing
- ☐ Health Care Equipment and Services
- ☐ Household and Personal Products
- ☐ Insurance
- ☐ Materials
- ☐ Media and Entertainment
- ☐ Pharmaceuticals, Biotechnology, and Life Sciences
- ☐ Real Estate
- ☐ Retailing
- ☐ Semiconductors and Semiconductor Equipment
- ☐ Software and Services
- ☐ Technology Hardware and Equipment
- ☐ Telecommunication Services
- ☐ Transportation
- ☐ Utilities

2.2 WHAT TYPE OF PRIVATE SECTOR ENTITY ARE YOU? (SELECT MULTIPLE IF APPLICABLE)

- ☐ Start-up
- ☐ For profit business
- ☐ Social enterprise
- ☐ Cooperative
- ☐ Public-owned company
- ☐ Other (specify)
- ☐ Multinational company (if yes how many countries)

2.3 SIZE OF COMPANY, BY NUMBER OF FULL TIME EMPLOYEES IN APRIL 2021

- ☐ 1-10 (Micro)
- ☐ 11-50 (Small)

- ☐ 51-100 (medium)
- ☐ >100 FTE (large)
- ☐ 101-250 FTE
- ☐ >250 FTE
- ☐ Prefer not to say

2.4. SIZE OF COMPANY BY APPROXIMATE GROSS REVENUE IN 2020

- ☐ <1 million USD/year
- ☐ 1-5 Million
- ☐ 5-10 million
- ☐ $10 million-$1 billion
- ☐ >$1 billion
- ☐ Prefer not to say

2.5 REGION/S OF OPERATION OR PRODUCTION (SELECT ALL THAT APPLY)

- ☐ Europe
- ☐ Middle East and North Africa
- ☐ North America
- ☐ South and Central America
- ☐ Sub-Saharan Africa
- ☐ Asia
- ☐ Australasia

SECTION 3: PRIVATE SECTOR ENTITIES - ACTIVITIES RELATED TO ACUTE MALNUTRITION/ WASTING IN CHILDREN

In this section – we are interested to hear about your activities related only to your role in the targeted prevention or management of acute malnutrition/ wasting in children, in the corporate, humanitarian or development sector.

3.1. IS YOUR ENTITY ENGAGED IN ANY PUBLIC-PRIVATE PARTNERSHIP (PPP) DEVELOPMENT WHICH ARE DIRECTLY LINKED TO THE TARGETED PREVENTION OR MANAGEMENT OF ACUTE MALNUTRITION/ WASTING IN CHILDREN, IF YES INDICATE WHICH TYPE OF PARTNERS YOU ARE WORKING WITH.

- ☐ No PPPs
- ☐ With Government partner/s
- ☐ INGO partner/s
- ☐ Local NGO or civil society organisation partner/s

- ☐ UN entity or donor partner/s
- ☐ Academic partner/s

3.2 IS YOUR COMPANY CURRENTLY CARRYING OUT ANY CORPORATE SOCIAL RESPONSIBILITY ACTIVITIES, WHICH ARE DIRECTLY LINKED TO THE TARGETED PREVENTION OR MANAGEMENT OF ACUTE MALNUTRITION/ WASTING IN CHILDREN? SELECT ALL THAT APPLY

- ☐ None (skip to next question)
- ☐ Philanthropic/charitable giving - cash
- ☐ Charitable giving - GIK
- ☐ Direct implementation of pro-social programmes
- ☐ Investing in social enterprise
- ☐ Investing in research
- ☐ Investing in local capacity
- ☐ Supporting volunteerism
- ☐ Environmental impact and sustainability
- ☐ Food / therapeutic food product development, testing and sales
- ☐ Diagnostic tools/ material development, testing and / or sales
- ☐ Other, specify

3.3 WHAT IS THE ESTIMATED VALUE OF YOUR COMPANY'S ANNUAL CONTRIBUTION TO TARGETED PREVENTION OR MANAGEMENT OF ACUTE MALNUTRITION/ WASTING IN CHILDREN IN TERMS OF:

- ☐ Approximate annual donation through charitable giving $_____
- ☐ Approximate annual contribution in gifts in kind $ _____
- ☐ Financial cost through CSR programmes and activities $_____
- ☐ Through contributions in kind (e.g. volunteerism) _____ (If his cannot be estimated leave blank)
- ☐ Prefer not to say

3.4 HAS YOUR ENTITY MADE OR CONSIDERED TO MAKE ANY PLEDGE TO THE NUTRITION FOR GROWTH SUMMIT (N4G) 2021 AND/ OR THE FOOD SYSTEMS SUMMIT (FSS)?

- ☐ No pledge, with no current plans to do so
- ☐ Pledge has been made
- ☐ Considering making a pledge but have not yet done so

SECTION 4: DETAILS OF INDIVIDUAL INNOVATIONS, PRODUCTS OR SERVICES

Under this section, we want to capture information about each of the specific projects, innovations, products, or services, that are applicable to the targeted prevention or management of acute malnutrition/wasting in children. Each response will be featured in an interactive landscape like this one, using the data you provide below.

4.1. DO YOU HAVE ANY INNOVATIONS, PRODUCTS OR SERVICES RELEVANT TO THE DETECTION, TARGETED PREVENTION OR MANAGEMENT OF ACUTE MALNUTRITION/ WASTING IN CHILDREN?

- ☐ Yes, add a response
- ☐ No, skip to next section

4.2. PRODUCT 1: NAME OF INNOVATION, PRODUCT OR SERVICE RELEVANT TO THE DETECTION, TARGETED PREVENTION OR MANAGEMENT OF ACUTE MALNUTRITION/WASTING IN CHILDREN.

[insert text]

4.3. PRODUCT OR SERVICE GROUP - IF THE PRODUCT OR SERVICE IS A FOOD OR NUTRITIONAL PRODUCT, WHICH GROUPS DOES IT BELONG TO?

- ☐ Food and nutritional products for targeted prevention of acute malnutrition/ wasting in children
- ☐ Food and nutritional products for management of moderate acute malnutrition/ wasting (MAM)
- ☐ Nutritional products for management of severe acute malnutrition wasting (SAM)
- ☐ None of these

4.4. FOOD AND NUTRITIONAL PRODUCTS. SELECT ONE OF THE FOLLOWING CATEGORIES WHICH MOST CLOSELY DEFINES YOUR PRODUCT:

- ☐ Complementary foods and porridges that require cooking/preparation
- ☐ Complementary foods and porridges that are ready-to-use with minimal no preparation
- ☐ Energy fortified biscuits
- ☐ Small and medium quantity lipid based nutrient supplements/ready-to-use complementary foods
- ☐ Other (specify)
- ☐ MAM treatment: Standard fortified blended foods (e.g. CSBs++, Supercereal +, etc.)
- ☐ MAM treatment: Standard ready-to-use supplementary foods
- ☐ MAM treatment New formulation: Reduced milk protein content supple-

mentary food

- ☐ MAM treatment New formulation: Non-dairy/non animal supplementary food
- ☐ MAM treatment New formulation: Peanuts replaced by other legumes, cereals or seeds
- ☐ MAM treatment: Microbiota directed complementary foods
- ☐ MAM Treatment: Other, specify
- ☐ SAM Treatment: Therapeutic milks (F-75, F-100)
- ☐ SAM Treatment: Standard ready-to-use therapeutic food
- ☐ SAM Treatment: Alternative formulation of RUTF: Milk protein content as per current recommendations (50% of total protein) but peanut replaced by other legumes, cereals or seeds (also known as renovations)
- ☐ SAM Treatment: Alternative formulation of RUTF: Milk protein content reduced/replaced by another animal protein such as fish, milk, egg or insect (also known as innovations)
- ☐ SAM Treatment: Alternative formulation of RUTF: Added amino acids or increased micronutrient (also referred to as novel)
- ☐ SAM Treatment: Alternative formulation of RUTF: Non-dairy alternative
- ☐ SAM Treatment: Other, please specify
- ☐ Other (please specify)

4.5 PRODUCT CLASSIFICATION – FOR NON-FOOD INNOVATIONS, PRODUCTS AND SERVICES - SELECT ONE OF THE FOLLOWING CATEGORIES, OR IF NONE APPLY INDICATE 'OTHER'.

- ☐ Agricultural products Food fortification approaches
- ☐ Agricultural products Biofortification
- ☐ Agricultural products Other, please specify
- ☐ Micronutrient supplements Vitamin and mineral supplements
- ☐ Micronutrient supplements Sprinkles
- ☐ Micronutrient supplements Natural product supplement (animal or plant based)
- ☐ Micronutrient supplements Other please specify
- ☐ Information Technologies Data systems and surveillance
- ☐ Information Technologies Supply chain systems
- ☐ Information Technologies Mhealth tools for diagnostics
- ☐ Information Technologies Communications or capacity building
- ☐ Information Technologies Beneficiary tracking systems

- ☐ Information Technologies Cash transfer systems
- ☐ Information Technologies Other
- ☐ Medical equipment, devices and diagnostics Diagnostic tools
- ☐ Medical equipment, devices and diagnostics Medical equipment
- ☐ Medical equipment, devices and diagnostics Other
- ☐ Medical service provision
- ☐ Information Technology (including mHealth, GIS and surveillance systems)
- ☐ Logistics and supply chain

4.5. DESCRIBE THE INNOVATION, PRODUCT OR SERVICE, AND ITS SPECIFIC USES AND APPLICATIONS TO THE TARGETED PREVENTION OR MANAGEMENT OF ACUTE MALNUTRITION/ WASTING IN CHILDREN. IF THIS WAS A PUBLIC-PRIVATE PARTNERSHIP, LIST THE PARTNERS ENGAGED IN DEVELOPMENT AS APPLICABLE.

[Insert text]

4.6. WHAT IS THE STAGE OF DEVELOPMENT OR MARKET SIZE FOR THIS INNOVATION, PRODUCT, PROJECT OR SERVICE? I.E. THE LEVEL OF CURRENT IMPLEMENTATION OR DISTRIBUTION TO DATE YOU ARE CURRENTLY REACHING OR HAVE REACHED.

- ☐ Test/design stage
- ☐ Pilot or localised use, recent launch
- ☐ Scaling up to district or provincial level
- ☐ Scaling up - National
- ☐ Scaling up - Regional
- ☐ Scaling up – Global

4.7. WHAT ARE THE CURRENT RESTRICTIONS OR LICENSING ARRANGEMENTS FOR THIS PRODUCT OR SERVICE?

- ☐ No, Public domain or public good (unrestricted)
- ☐ Yes, Creative commons license
- ☐ Yes, Copyrighted
- ☐ Yes, Patented
- ☐ Yes, Patent pending

4.8. DO YOU HAVE ADDITIONAL PROJECTS, INNOVATIONS, PRODUCTS OR SERVICES?

- ☐ Yes, add another

- ☐ No, skip to next section

SECTION 5: TAKING TO SCALE: BARRIERS, ENABLERS AND CASE STUDIES

5.1 IF YOU ARE WORKING TOWARDS SCALE, WHAT CURRENT CHALLENGES DO YOU PERCEIVE IN ACHIEVING THIS? (SELECT UP TO 3)

- ☐ Not applicable
- ☐ Lack of appropriate partners
- ☐ Lack of capacity
- ☐ Restricted markets or
- ☐ Access to consumers/procurement
- ☐ Achieving high levels of evidence
- ☐ Achieving quality of products
- ☐ Affordability of product
- ☐ Gender inequalities
- ☐ Other

Comment:

5.2 WHAT STAGE IN THE VALUE CHAIN FOR DISTRIBUTION ARE PRESENTING THE MOST SIGNIFICANT BOTTLENECKS TO SCALE?

- ☐ Not applicable
- ☐ Research and development
- ☐ Evidence generation
- ☐ Validation by normative agencies such as WHO
- ☐ Manufacture/ production
- ☐ Direct service provision
- ☐ Training or capacity building
- ☐ Distribution to third party providers
- ☐ Marketing and sales direct to consumer

Comment

5.3 WHAT OPPORTUNITIES OR MARKET GAPS DO YOU PERCEIVE IN ENHANCING THE PRIVATE SECTOR'S CONTRIBUTION TO ADDRESS ACUTE MALNUTRITION/ WASTING IN CHILDREN?

5.4 WHAT ARE THE SUCCESS FACTORS OR ENABLERS THAT YOU HAVE EXPERIENCED THAT FACILITATE TAKING THE PROJECT, INNOVATION, PRODUCT OR SERVICE TO SCALE?

5.5 SELECTED CASE STUDIES OR EXAMPLES OF SCALABLE SOLUTIONS FOR TARGETED PREVENTION OR MANAGEMENT OF ACUTE MALNUTRITION/ WASTING IN CHILDREN

If you have indicated an innovative private sector approach or public private partnership that has or has to potential to transform the targeted prevention or management of acute malnutrition/ wasting in children, listed in section 4, that you would like to be featured in the report or an 'innovations and solutions landscape map' please email case studies to info@acutemalnutrition.org. Alternatively you can upload or add a link to a document below.

Case studies should be no more than 500 words and capture:

Experiences in R&D, evidence, location, results, challenges, aspirations for the solution, scope and scale, point of contact, partners/ donors.

Document upload

OR

Link to document

ANNEX 2: LIST OF CONTRIBUTERS

NAME OF COMPANY OR ORGANISATION WHO CONTRIBUTED TO THE LANDSCAPE ANALYSIS	
AACE Food Processing and Distribution Ltd	GEWDO
Aberdare Aquafisheries	GREEN EAST TRADERS LTD
ABH Partners, an affiliate of Jimma University	GREEN WITHOUT BORDERS
Aga Khan University Pakistan	Gret
Agribusiness Solutions LTD	Happi Foods Farms Limited
Ahmadu Bello University, Zaria.	Health and Nutrition Development Society
Ajinomoto Co., Inc.	Healthy and Happy Families Ltd
ALIMA/INSERM	Ibn sina hospital
AugustSecrets	innocent Foundation
Bacha Khan University Charsadda, Pakistan	Insta Products (EPZ) Ltd.
BAO Systems	IPE Global
Baringo County Government, Department of Health	IRC – International Rescue Committee
BETKAM fruits & grain processors: women self-help group	Ismail Industries Limited
BHSS	IVC MCP KP Pakistan
Bombay Sweets & Co; Ltd.	Jigawa State Primary Health Care Development Agency
BONA HOLDINGS	Livelihood Relief & Development Organization
Brixton Health	Make Hope for Development
CARE	Mana Nutrition
CATO FOODS AND AGRO-ALLIED GLOBAL CONCEPTS	MEDIA ADVOCACY AND TECHNOLOGIES CENTER
Ceymplon Private Limited	Meds & Food for Kids
Comrade Dairy and Food Enterprises	Ministry Of Health
Copenhagen University	Michael Adedotun Oke Foundation
DABS Nutritional Products Limited	Michiels Fabrieken NV
Dailytummies	Mushroom Farmers SHG
Dajopen Waste Management Project	National University Sudan
DCF Danish Care Foods	Nestle Pakistan
Deggaras Humanitarian Organization	Ninguna
Dimagi	NRC Norwegian Refugee Council
Disco Farm Solutions	Nuflower Foods and Nutrition
Dvakoiy Supplies	NUTRIK LTD
Edesia	Nutrition Opportunities Worldwide inc
Edesia	Nutri-Worth International
Edge Global Health Development Partners	Nyangorora Banana Processor limited
Emergency Nutrition Coordination Unit	Omega Foods Zambia Limited
Episcopal Development Aid	Patil Medical college Pune Maharashtra India
Family Guidance Association of Ethiopia	PPHI Sindh Pakistan
Favor Dairy	Programa Provincial da Malária Cunene
FedWell Foods Company Ltd.	Quads Organics Nigeria
Former Nutrition Manager for AAH Spain and IMC	Quickuplus farm ltd
GC Rieber compact	Full Spoon Limited

NAME OF COMPANY OR ORGANISATION WHO CONTRIBUTED TO THE LANDSCAPE ANALYSIS	
GC Rieber compact	Real Hope For Haiti
GEWDO	Renata Limited
GREEN EAST TRADERS LTD	San Ignacio de Loyola Peru
GREEN WITHOUT BORDERS	Save The Children International
Gret	Save the Children UK
Happi Foods Farms Limited	Servair
Health and Nutrition Development Society	Shais Enterprise Ltd T/A Shaisfoods
Healthy and Happy Families Ltd	Sidho Kanho Birsha University
Ibn Sina hospital	Simple Nutri
innocent Foundation	Social Marketing Company (SMC)
Insta Products (EPZ) Ltd.	Soma Nutrition Labs
IPE Global	The Eleanor Crook Foundation
IRC	The Informed Mum
Ismail Industries Limited	The Kingdom Food Bank
IVC MCP KP Pakistan	UNICEF
Jigawa State Primary Health care Development Agency	UNICEF & IRD
Livelihood Relief & Development Organization	Unilever
Make Hope for Development	United Multipurpose Co-op Society Ltd.
Mana Nutrition	VALID Nutrition
MEDIA ADVOCACY AND TECHNOLOGIES CENTER	VGR
Meds & Food for Kids	WEFAHSON LIMITED
Ministry Of Health	World Food Programme
Michael Adedotun Oke Foundation	World Health Organization
Michiels Fabrieken NV	World Vision
Mushroom Farmers SHG	Yanza Amansa Agri Grains Ltd
National University Sudan	
Nestle Pakistan	
Ninguna	
NRC Norwegian Refugee Council	
Nuflower Foods and Nutrition	
NUTRIK LTD	
Nutrition Opportunities Worldwide inc	
Nutri-Worth International	
Nyangorora Banana Processor limited	
Omega Foods Zambia Limited	
Patil edical college Pune Maharashtra India	
PPHI SIndh Pakistan	
Programa Provincial da Malária Cunene	
Quads Organics Nigeria	
Quckuplus farm ltd	
Real Hope For Haiti	
Renata Limited	
San Ignacio de Loyola Peru	

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