FOOD FORTIFICATION

HOW CAN WE TACKLE THE FOOD CRISIS THROUGH PARTNERSHIPS TO SCALE FOOD FORTIFICATION?
The world is facing a food and nutrition crisis due to conflict, supply chain constraints, rising cost of living, especially fuel and food prices, and climate change. Although the global community has made progress in reducing poverty and hunger in recent decades, the COVID-19 pandemic reversed this trend. Millions of people are being pushed into food and nutrition insecurity. It is estimated that the number of people who are undernourished has increased by up to 150 million in the last two years to between 702 and 828 million people in 2021, and the Russian war in Ukraine will have exacerbated this further.

There is a widening gender gap, with 31.9% of women in the world in 2021 moderately or severely food insecure compared to 27.6% of men. The most vulnerable families are forced to rely on nutrient-poor staples, putting them at a high risk of malnutrition. In 2020, an estimated 22% of children under five years of age were stunted due to malnutrition, and 6.7% were wasted. In addition, there are many billions in ‘hidden hunger’: people who, despite having a sufficient quantity of food, are malnourished due to its poor nutritional value. Forthcoming research estimates that “over half of preschool-aged children and two-thirds of non-pregnant women of reproductive age worldwide have micronutrient deficiencies.”

Food fortification—an approach through which consumed staple foods such as flour, oil, salt, and more recently rice, are fortified with essential micronutrients like folic acid, iodine, iron, Vitamin A, or zinc—can help to tackle these issues. It has been estimated that for every dollar invested in food fortification, 27 dollars are generated in terms of saved costs for healthcare and averted diseases. Furthermore, the lifetime cost of food fortification per person is three times lower than that for vaccination, while economic returns are almost double.

Despite these evident benefits, as well as significant progress made in hundreds of countries to scale up national food fortification programmes over the last three decades, COVID-19, conflict, and climate change are challenging the sustained scale and quality of food fortification in these countries, and especially its reach to those who need it the most.

“Food fortification is one of the most cost-effective ways to make a difference in the lives of low-income people. ...We’re here to drive large-scale access to changes in the system for food availability, for cost structures, for nutrition density and large-scale food fortification. We need to move beyond pilots to translate upstream R&D into actual delivery on the ground.”

—Rodger Voorhies, President, Global Growth and Opportunity, Bill and Melinda Gates Foundation
TechnoServe, Business Fights Poverty, Accenture, and Endeva co-hosted a workshop on 19 September 2022 to explore how the public sector, private sector (including both local millers and multinational companies), and development organisations can work together to build a supportive ecosystem and drive innovation that sustains the scaling up and quality of staple food fortification by larger numbers of millers and food processors. The hybrid event brought together 20 leaders in food and nutrition in New York and online, with a global online audience of around 30 people.

In the public opening session, leaders from the Gates Foundation, World Food Programme, the Global Alliance for Improved Nutrition, the Kenyan Cereal Millers Association, the Scaling Up Nutrition Movement, AGRA, and the U.S. Department of State provided their perspectives. After this, a closed discussion was held under the Chatham House Rule. The workshop ended with a public plenary session in which key insights from the private sessions were reported. This report provides a summary of the main insights and recommendations.

“In order to upscale fortification, the private sector must be the center of this conversation. We need policies that would assist us in dealing with a current harsh economic situation. We realize that the private sector is so powerful. We’re partners in this journey, and we need to get it right. Our commitment to fortification must be unquestionable.”

—Paloma Fernandes, CEO, Cereal Millers Association, Kenya
2. THE KEY ROLE OF MILLERS

MILLERS HOLD THE KEY TO ADDRESSING THE FOOD AND NUTRITION CRISIS, BUT THEY LACK THE ENABLING POLICIES, INCENTIVE STRUCTURES, AND TECHNICAL CAPACITIES TO FORTIFY AT SCALE.

With their critical role in local, national, and regional food systems as well as their direct link to customers, including vulnerable groups, millers are essential in ensuring that people have access to nutritious foods. Medium-sized and small-scale millers play a particularly invaluable role in ensuring that households and communities in more remote areas have access to good-quality food. However, the enabling environment and incentive structures for millers—especially for medium-sized and small-scale millers in the Global South—are not designed to promote food fortification at scale.

Paloma Fernandes is CEO of the Cereal Millers Association, Kenya—an umbrella organisation of wheat and maize milling companies representing roughly 40% of the maize and 90% of wheat milling capacity of the country and reaching over 35 million consumers in Kenya. She reported how millers can be hesitant to invest in fortification in the face of multiple significant challenges. In Kenya, millers whose businesses have already faced significant disruption from COVID-19 are now coping with insufficient supplies of good-quality grain as a result of the Ukraine crisis and extended regional drought in East Africa. Paloma reported that consequently, the cost of cereal fertilizer increased 57%, the cost of wheat increased 30%, and the cost of maize increased 90%. Sustaining fortification is inhibited by these rising costs coupled with slow political response to the crisis, the imposition of subsidies that require flour to be sold at a single price regardless of quality or fortification, and the lack of a level playing field for small-scale millers compared with their larger counterparts.

Despite the challenges, progress is being made to engage medium- and small-scale millers in food fortification in Kenya. The Cereal Millers Association has built partnerships to build the capacity of their membership, resulting in a rise in fortification compliance from 51% in 2018 to around 90% in 2020. To sustain this progress, Paloma called for greater action both on private-sector partnerships and on governmental policy: “our commitment to fortification must be unquestionable”.

3. A DOUBLE-PRONGED APPROACH TO SCALE FOOD FORTIFICATION

The workshop identified two important areas of action to create systemic change through public-private partnerships: first, collective advocacy aimed at both policymakers and consumers, and second, operational investments and innovation, ranging from jointly delivering appropriate technical, digital, and data solutions to new models of financing and capacity building.

3.1 COLLECTIVE ADVOCACY: CREATING ENABLING POLICY ENVIRONMENTS AND BOOSTING CONSUMER DEMAND

Jane Nelson, Director of the Corporate Responsibility Initiative at Harvard Kennedy School, highlighted that when it comes to scaling up food fortification, we are starting from a position of experience: “The leadership challenge is clear, and it’s urgent: how do we dramatically accelerate and scale the progress that’s already been made? We’ve had decades of experience in large-scale food fortification initiatives, particularly in salt, wheat, maize and edible oils, and at least 140 countries now have some mandatory requirements for at least one staple food to be fortified, but we are not achieving the speed, scale, or reach that are needed, especially for the most vulnerable.”

“Addressing hunger and malnutrition requires political will and suitable policy frameworks. We must tackle the complex food crisis as one. We need to identify how to bring good solutions and innovations—such as food fortification—to scale, with all hands on deck, from national governments and communities, to private sector to humanitarian and development sector actors.”

—Ute Klamert, Deputy Executive Director, World Food Programme
“We can create that awareness, using the power of our brands, to try and influence consumers to actually think about the benefits of good nutrition.”

—Paloma Fernandes, CEO, Cereal Millers Association, Kenya

INCREASE CONSUMER ADVOCACY, AWARENESS RAISING, AND SUPPORT

Alongside public policy advocacy, the private sector has a particular role in leveraging their brands’ media reach and consumer relationships to educate consumers on the benefits of fortified foods and boost demand for these foods whilst ensuring, in the context of a cost-of-living crisis, that fortified foods are affordable and accessible.

While recognising the power of brands and media outreach, participants also highlighted some of the challenges to raising consumer awareness and demand for fortified products. These included overcoming fears and distrust around unfamiliar additives, ensuring that fortification does not undermine the taste or smell of products, and aligning fortification efforts with local cultural and contextual realities.

Lawrence Haddad urged, “those are achievable and surmountable challenges, and we’ve done it in many countries with the support of the Gates Foundation, The Netherlands government, the Rockefeller Foundation, and DSM and many more.”

In addition to raising consumer awareness, participants recognized the need to ensure fortified products are available at affordable prices for all consumers, and they called for partnerships between private and public foundations, civil society, and donor governments to drive economies of scale that lower prices, especially for the most vulnerable communities and in humanitarian crises.
There is also a growing need for collaboration with the humanitarian sector. Ute Klamert, Assistant Executive Director of the World Food Programme, reflected on the challenges the WFP is facing in Somalia, Sudan, Ethiopia, and Yemen, where food fortification could be part of the humanitarian solution to malnutrition in areas of conflict and political instability. Dorothy McAuliffe, Special Representative for Global Partnerships at the U.S. Department of State, and Vanessa Adams, Vice President of Strategic Partnerships and Chief of Party, AGRA, reflected on how partnering with humanitarian assistance programmes, such as those led by USAID and the UN World Food Programme, could enable them to leverage their own operations to increase local demand and provide transferable lessons to strengthen food fortification initiatives—for example, by drawing on cross-sectoral partnerships with the education and healthcare sectors that have increased school meal provision and reduced child hunger, and strengthening links between the provision of food aid and supporting local smallholder farmers and rural economies.

“By the power of bringing together diverse stakeholders—from education, public health, and business—we can and we must find effective innovations that will help us tackle our global food security crisis.”

—Dorothy McAuliffe, Special Representative for Global Partnerships, U.S. Department of State
3.2 OPERATIONAL INVESTMENTS AND INNOVATION: OPTIMISING EXISTING FOOD FORTIFICATION TECHNOLOGIES, CAPACITIES, AND INITIATIVES AND BRINGING THEM TO SCALE

LEVERAGE BLENDED FINANCING MECHANISMS

Despite the clear benefits of food fortification and many examples of success, there are far too few resources invested in this area, especially at scale. In addition to government funding, the private sector has an important role to channel finances into promising initiatives. However, several speakers emphasised that we must avoid the trap of funding large numbers of pilots at the expense of scaling or replicating those initiatives that are already successful, in order to drive large-scale access to food fortification through systemic change.

“'The challenge at the moment is to get more money for fortification, that's important; but maybe even more important is getting more fortification for the money we put in.'”

—Lawrence Haddad, Executive Director, Global Alliance for Improved Nutrition (GAIN)

Organisations like Power of Nutrition are already providing innovative financing and partnership platforms to scale up action on nutrition. One suggestion was for partnerships between investors, banks, regulators, and different types of issuers to create a nutrition capital market bond market, similar to the market that exists for green bonds.
OPTIMISE THE FOOD FORTIFICATION PROCESS

Alongside increased investment, there is huge potential for efficiencies and improvements to be made in the food fortification process itself. Several participants highlighted the problem of poor-quality fortification, with improvements needed both to standards and to assurance processes. Participants observed that, currently, quality assurance and quality control processes can create friction and slow down progress, and that partnerships in this area, supported by digital technology, can improve data collection, transparency, collaboration and communication across the sector.

Both Lawrence and Paloma shared how utilising data, digitalization, and independent analysis can reduce leakages, helping millers achieve compliance with fortification standards and expose gaps in input supplies. Felix Brooks-Church provided the example of SANKU, who are using “Internet of Things” solutions to bring information from their mills to a dashboard to improve decision-making and to understand SANKU’s impact and reach. Accenture has been partnering with companies worldwide to bring digital innovation into the agricultural systems and food systems, to produce and analyse accessible data for food fortification.

Reporting back from his online breakout group, Leo Schultz-Vennbur, Manager Food Fortification, Muehlenchemie/SternVitamin, reiterated the need to collect—and, especially, share—data to show progress and help make the case for fortification. He suggested that using monitoring tools such as iCheck Connect allows the process to be controlled locally by the millers themselves and can provide a more comprehensive picture of the availability and use of micronutrients in fortified products.

In developing data collection and monitoring systems, it is important to recognise the ways in which technology can exclude already-marginalized communities further and exacerbate inequality. Therefore, data innovations need to be designed for use at the local level, putting data collection and ownership in the hands of small-scale millers and people in remote areas. And these innovations need to be recognised by local regulatory authorities.

“...it is critical to converge goodwill into practical, implementable flagships that are investable.”

—Vanessa Adams, Vice President of Strategic Partnerships and Chief of Party, AGRA
STRENGTHEN CAPACITY-BUILDING AND TECHNICAL ASSISTANCE FOR MILLERS AND FARMERS.

Capacity-building for medium-sized and small-scale millers is another area in which investment is needed—for example, investment in equipment, training, and the necessary storage and transport infrastructure to ensure reliable access to fortification inputs. The particular challenges of ensuring access to food fortification in ‘last-mile’ or remote communities requires specific attention—for example, ensuring that for smaller-scale millers, inputs are available in affordable quantities. Participants called on larger companies to engage with trade associations and develop new business models to work more closely with medium- and small-scale millers in their value chains, following the example of organisations like Sanku.

Besides millers, Gerda and others advocated for small-scale farmers not being forgotten; they provide their communities with food and, with support from input providers, can help to increase the nutritional value and quality of crops—for example, by facilitating access to better seeds, fertilizers, and irrigation systems. In implementation of capacity-building programmes, Gerda urged global actors and companies to look at the problem from the perspective of country-level decision-makers, and to align with and support existing food systems pathways and other national programmes.
“Everyone in the discussion agreed that we need a stronger focus on small scale, especially in the rural areas. So, we need business models that really put their focus on small-scale mills and adapt products and services to their needs.”
—Leo Schulte-Vennbur, Manager Food Fortification, Muehlenchemie/SternVitamin

IMPROVE TRADE-RELATED INTERVENTIONS

Finally, there are trade-related interventions that can help scale food fortification. In addition to country-level interventions, disruptions in cross-border trade have impacted the ability of millers to fortify foods. Lawrence shared how GAIN has developed premix storage facilities that can be activated if trade deals or international crises, such as the Russian war in Ukraine, disrupt the supply of inputs. Whilst such practical interventions can help boost resilience, Vanessa Adams highlighted the potential of a future African Continental Free Trade Area, which could help smooth the supply of inputs across borders. She also commented that information-sharing technologies, such as AGRA and COMESA’s Regional Food Balance Sheet for southern and eastern Africa, are enabling countries to access forecasts and better plan for food distribution.

“You don’t need to start from scratch because most countries already have food systems pathways. So, enter this discussion and look at the opportunity in this crisis. What are the plans? What are the initiatives and how can you support either a region or a country to scale up implementation and to speed up implementation?”
—Gerda Verburg, UN Assistant Secretary General and Co-ordinator, SUN Movement
4. RECOMMENDATIONS

The discussion highlighted six key recommendations for public and private sector partners to help scale food fortification, through strengthening the technical, financial, operational, and market capacity of millers in the Global South and providing a better enabling environment, level playing field for industry, and incentive structures to increase efforts to fortify foods at the right standards and at affordable prices:

**POLICY ADVOCACY:**
Consult all stakeholders, including medium- and small-scale millers and relevant national or local business associations, and utilise cross-sectoral advocacy networks to advocate for supportive policy environments and effective implementation of mandatory food fortification.

**CONSUMER ADVOCACY:**
Create partnerships for public health communication, leveraging the power of brands, civil society community relationships, and government health communications to build consumer awareness and trust in food fortification, and educate on benefits.

**FINANCIAL INVESTMENT:**
Develop innovative public and private sector blended funding platforms to channel more money into food fortification, particularly those initiatives and platforms that scale the work of successful entrepreneurs in the Global South.

**OPERATIONAL EFFICIENCY AND QUALITY ASSURANCE:**
Working through cross-sectoral regional partnerships, sustain and improve input product quality of fortified foods by leveraging supply chains and utilising locally controlled data technology for quality assurance.

**CAPACITY-BUILDING:**
Leverage supply chains and cross-sectoral partnerships to support more medium- and small-scale millers and smallholder farmers with finance, inputs, equipment, and skills in a way that supports the integration of food fortification practices into business practices and the existing government priorities and food systems pathways.

**TRADE:**
Cooperate within the sector and with government to build an LSFF system that is more resilient to geopolitical and climatic shocks, and advocate for removal of cross-border barriers to trade in premix and inputs.

Table 1 shows the range of actions that companies, investors, governments, and civil society can take to begin to create a systemic shift that will enable more and better food fortification.

---

We’ve heard there are a number of clear areas for obvious collective action. **One: political advocacy to get more legislation on the books and getting malnutrition much more at the center of advocacy with consumers. And then there are the operational challenges: mobilizing financing, capacity building and technical platforms, as well as scaling.”**

—Jane Nelson, Director, Corporate Responsibility Initiative, Harvard Kennedy School
5. CONCLUSION

The global roundtable demonstrated alignment of a large and diverse group of relevant organisations behind a shared vision for sustaining the scale and quality of food fortification in the face of recent economic challenges—a vision where everyone who needs fortified foods has affordable access to them, and where food fortification is driven by public and private actors from the global south, with support from global and regional organisations.

Contributions from food fortification champions from the global south showed that programmes are working, but systemic challenges remain. These challenges include building the necessary capacity and technology to adequately fortify foods and, in particular, to reach ‘last mile’ or remote communities. But beyond that, there is a need for better operating environments and incentive structures that enable SME millers to operate on a level playing field and to drive food fortification in their countries and local communities.

Key food fortification stakeholders from the private and the public sectors need to join forces to address these challenges and create an environment that supports SME millers as champions and active agents in addressing the food and nutrition crisis in their country, and also to help them scale solutions on a country-level and regional basis. We need increased investment in food fortification but also collaborations to ensure that the money which is invested goes further. And we need joint advocacy at both the political and consumer level to speed up adoption and increase demand.

The case for fortification is clear: it is a cost-effective investment with huge gains for the immediate wellbeing of the world’s poorest people, as well as for long-term public health and resilience. We call on all stakeholders to join forces to put in place the measures that will prevent decades of success from being rolled back and to support national initiatives that are being driven by individual and institutional leaders in the Global South. There is not a moment to lose.
**TABLE 1 — Actions that companies, investors, governments, and civil society can take to scale food fortification and support medium-sized and small-scale millers**

<table>
<thead>
<tr>
<th>ADVOCACY</th>
<th>Companies</th>
<th>Investors</th>
<th>Governments</th>
<th>Civil Society</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Political</strong></td>
<td>Consult with stakeholders in supply chains, particularly SME millers.</td>
<td>Consult with investee companies and advocate for necessary policy change.</td>
<td>Consult with diverse stakeholders to understand the need for FF, current capacity, and barriers to scaling.</td>
<td>Utilise local, national, and intergovernmental networks to raise the profile of food fortification as a development issue.</td>
</tr>
<tr>
<td></td>
<td>Utilise advocacy networks to advocate for necessary policy change, including removal of trade barriers and establishment of level playing fields.</td>
<td>Identify and raise awareness of systemic risks in connection with rising malnutrition.</td>
<td>Legislate for mandatory FF.</td>
<td>Share lessons from other relevant cross-sectoral partnerships.</td>
</tr>
<tr>
<td><strong>Community</strong></td>
<td>Use the power of brands to communicate the health benefits and safety of FF, in partnership with other sectors.</td>
<td>Engage with investee companies on FF as a measure of social impact.</td>
<td>Partner with private sector and civil society on public health campaigns for wider adoption of FF.</td>
<td>Partner with governments and private sector on public health campaigns on FF.</td>
</tr>
<tr>
<td><strong>OPERATIONS</strong></td>
<td>Invest in R&amp;D and scaling successful pilots.</td>
<td>Intentionally seek out investment opportunities to develop new FF vehicles and scale existing initiatives.</td>
<td>Champion FF as a key contributor to public health, and include in budgets where possible.</td>
<td>Partner with private sector, particularly in supply chains, to grow successful LSFF initiatives at a local level.</td>
</tr>
<tr>
<td><strong>Finance</strong></td>
<td>Partner with FF entrepreneurs from the Global South.</td>
<td>Champion FF as a key contributor to public health.</td>
<td>Align initiatives with national Food Systems Pathways.</td>
<td>Align initiatives with national Food Systems Pathways.</td>
</tr>
<tr>
<td><strong>Efficiencies</strong></td>
<td>Sustain and improve product quality.</td>
<td>Engage with investee companies on measures of FF social impact.</td>
<td>Utilise data technology to assist with food planning.</td>
<td>Think regionally: how can partnerships with initiatives within and also between countries help to scale?</td>
</tr>
<tr>
<td></td>
<td>Deploy data technology to track nutrients and measure social impact.</td>
<td>Think regionally: how can partnerships with initiatives within and also between countries help to scale?</td>
<td>Think regionally: how can partnerships with initiatives within and also between countries help to scale?</td>
<td></td>
</tr>
<tr>
<td><strong>Capacity-Building, particularly ‘last mile’</strong></td>
<td>Support suppliers, particularly small-scale millers, with training, finance, and incentives.</td>
<td>Implement policies to support the businesses of SME millers and small-scale farmers.</td>
<td>Partner with companies to build capacity in supply chains, particularly ‘last mile’.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Align initiatives with national Food Systems Pathways.</td>
<td>Invest in infrastructure.</td>
<td>Align initiatives with national Food Systems Pathways.</td>
<td></td>
</tr>
<tr>
<td><strong>Trade</strong></td>
<td>Build the resilience of supply chain infrastructure, e.g. premix storage facilities.</td>
<td>Work with other governments to overcome trade barriers and disruptions.</td>
<td>Work with other governments to overcome trade barriers and disruptions.</td>
<td></td>
</tr>
</tbody>
</table>
We would like to thank the discussants and participants who generously gave their time and expertise to this roundtable.

**Main Discussants:**
- Vanessa Adams, Vice President of Strategic Partnerships and Chief of Party, AGRA
- Andreas Bluethner, Director of Nutrition, Bill and Melinda Gates Foundation
- Paloma Fernandes, CEO, Cereal Millers Association, Kenya
- Lawrence Haddad, Executive Director, Global Alliance for Improved Nutrition
- Ute Klamert, Assistant Executive Director, World Food Programme
- Dorothy McAuliffe, Special Representative for Global Partnerships, U.S. Department of State
- Jane Nelson, Director, Corporate Responsibility Initiative, Harvard Kennedy School (Moderator)
- Gerda Verburg, Assistant Secretary General, United Nations and Coordinator, Scaling Up Nutrition Movement
- Rodger Voorhies, President, Global Growth and Opportunity, Bill and Melinda Gates Foundation

**Breakout Discussants:**
- Geraldine Matchett, Co-CEO, DSM
- Leo Schulte-Vennbuhr, Manager Food Fortification, Muehlenchemie/SternVitamin
- Felix Brooks-Church, Co-Founder and CEO, Sanku

---

Stay tuned for the upcoming research paper "Fortifying markets: How stronger local value chains can enable millers to fortify staple foods and contribute to public health", written by Jane Nelson, Director, Corporate Responsibility Initiative at the Harvard Kennedy School and Endeva. The paper looks at how millers can contribute to avoid malnutrition in the present food crisis by fortifying staples. Adding micronutrients like iron, zinc, and Vitamin A to flour, oil, or rice helps to avoid deficiencies and the resulting negative health consequences. However, millers need a better supporting ecosystem to do so.

**Useful Resources**

**Reports and Publications**

**Organizations and Initiatives**
- AGRA/COMESA Regional Food Balance Sheet
- BioAnalyt’s iCheck Connect
- Cereal Millers Association Kenya
- GAIN
- Power of Nutrition
- Sanku
- Scaling Up Nutrition (SUN) Movement
- TechnoServe: Strengthening African Processors of Fortified Foods

---

We outline 6 opportunities to scale food fortification:

1) Create transparency on large-scale food fortification (LSFF) results via digital platforms
2) Build local testing capacity
3) Support permanent capacity building institutions
4) Support small mill solutions
5) Create new consumer-centric solutions
6) Advocate for reliable frameworks

These interventions will motivate and enable millers to fortify and thus make a critical contribution to public health at a broad scale. The report will be published at endeva.org.