

# A Joint Vision to Realize the Full Power of Large-Scale Food Fortification:

A Proven, Cost-Effective Approach to  
Improve Nutrition and Unlock Human  
Potential at Scale



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**V**itamins and minerals are critical to saving lives, improving immune systems and cognition, and promoting optimal growth and development. Yet more than two billion people around the world suffer from deficiencies in essential micronutrients such as iron, vitamin A, zinc, folic acid, and iodine. These deficiencies cost an estimated loss of 2-5 percent of a country's annual gross domestic product (GDP) and are ultimately caused by poor diets—often associated with poverty and food insecurity—and need to be addressed by food system changes.

Food fortification—adding safe levels of essential vitamins and minerals to commonly consumed foods such as salt, flour, and cooking oil at the time of processing—is one of the most scalable, sustainable, and cost-effective tools available to reduce micronutrient deficiencies and improve nutrition worldwide. A recent systematic review and meta-analysis of large-scale food fortification (LSFF) programs confirmed the impact of fortification on nutritional and functional outcomes. It is estimated that every \$1 invested in food fortification generates

\$27 in economic returns from disease prevention, improved earnings, and enhanced work productivity.

While mandatory fortification of staple foods and condiments is widely used to address micronutrient deficiencies in many countries, food fortification has not yet met its potential for impact at global scale and is far from doing so at the current pace of progress. Seventy-two percent—or 142 countries—currently mandate food fortification of one or more of these commodities, and 124 countries have mandated salt iodization. However, many of these existing programs are not well-designed or implemented, and many other countries could benefit from fortification programs but have yet to adopt this intervention.

New energy and momentum are urgently needed to scale up this proven solution with a 100-year history of results. In recognition of this, the Bill & Melinda Gates Foundation, UNICEF, and USAID have developed this joint vision document in an effort to identify areas of alignment in our strategies in order to accelerate progress and catalyze momentum on LSFF.

## VISION

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The LSFF agenda is too large for a single institution to tackle alone. Additionally, a key barrier to effective LSFF implementation historically has been a lack of collaboration and coordination. Our three institutions are therefore expressing our intention to: (1) work toward programmatic alignment and complementarity; (2) collaborate and consider co-investment in regions where we are jointly operating; and (3) leverage our collective voices to raise LSFF higher on the agenda and bring others along with us. Our collective vision is to support an enabling environment for countries to increase and sustain effective coverage of safely- and adequately-fortified staple foods and condiments in countries where dietary micronutrient inadequacies exist and necessary conditions for sustainable and effective LSFF can be achieved. We will also support global and regional efforts to galvanize greater support for national scale-up.

Over the next decade, USAID, BMGF, and UNICEF intend to enhancing our resources to strengthen and empower locally-led fortification programs. We intend to catalyze action from public and private sector partners around the globe that will reach an additional 1 billion consumers with essential vitamins and minerals in staple foods and condiments.

## CORE PRINCIPLES

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To guide our joint LSFF planning and implementation activities, we recognize the following core principles:

- **We can be better, faster and more sustainable together** – We intend to harmonize efforts via joint collaboration at global, regional and national levels.
- **An important tool, but not a silver bullet** – While LSFF can provide a safety net for intake of essential micronutrients added to and consumed with staples and condiments, there is no substitute for broader goals of dietary diversity.
- **Driven by context-specific data** – All LSFF programming should be based on local context and data, particularly regarding nutritional need and intake of micronutrients from the diet including

## BARRIERS TO EFFECTIVE IMPLEMENTATION

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The new partnership will address the following barriers to LSFF scale up:

- **Lack of collaboration and coordination:** Effective collaboration and coordination is frequently a constraint; successful fortification requires collaboration between and within government institutions, the business sector, civil society and academia.
- **Weak or lack of standards:** Many countries do not have evidence-based technical fortification requirements (i.e., industry standards). Others have standards but are insufficient, covering only 1-2 food vehicles per country if they exist at all (and 1-2 micronutrients per vehicle), leading to inadequate reach and impact.
- **Low compliance:** Only 15-50 percent of fortified foods comply with standards, largely due to ineffective quality assurance and control. Although multiple countries have mandatory requirements for food fortification, far fewer enforce such requirements through effective regulatory monitoring by authorized government agencies.
- **Data gaps:** Persistent data gaps provide an incomplete view on deficiencies, impeding greater investment, better standards, higher quality programs, and tracking success. Data quality, frequency, and analysis need to be prioritized to create efficient LSFF programs.
- **R&D advancement:** Additional innovation is needed to expand the range of food vehicles and formulations required to satisfy diverse consumption patterns and reach people in all geographies.
- **Low technical capacity:** Limited fortification experience and capacity undermine fortification quality, enforcement, and transparency—which impedes compliance efforts by both food producers and government regulators.

fortified staples, fortification vehicles, population coverage and estimation of the potential contribution of food fortification.

- Enactment of **standards and regulations are a first and important step** – Government must level the competitive “playing field” by effectively, equitably and universally regulating and enforcing fortification and other food quality and safety standards across the food industry. Mandatory programs have demonstrated a public health benefit because they aim at universal fortification of the food vehicle and hence equitable access, although under certain conditions where the private sector is concentrated and motivated to fortify, voluntary fortification may also work. Social marketing and consumer demand efforts have less incremental impact in the context of mandatory fortification, although the population should be made aware of the benefits of fortification.



- **While government-led, there are critical roles for the private sector, civil society and other development partners** – The private sector should be encouraged, supported, and held accountable to meet fortification and other food quality and safety standards because it is both socially responsible and good business, while a portion of the incremental costs (typically 1-2%) associated with fortifying most staple foods can be passed to the consumer. Fully capturing this value proposition requires a “whole-of-business” approach to working with food processors—addressing the full spectrum of business planning, access to finance, product development, operational efficiencies, quality assurance/quality control (QA/QC), and distribution and marketing—recognizing industry needs to maintain market

share and profitability. Civil society has an essential role, holding both government and food industry accountable and supporting coordination and monitoring and evaluation of LSFF programs.

## STRATEGIC AREAS FOR COLLECTIVE ENGAGEMENT

Given its benefits and proven approach, **large-scale food fortification is an underutilized tool in our efforts to end preventable diseases and death. Our vision is to engage in collective action where our individual LSFF strategies align** in the following areas to accelerate LSFF’s impact on human health and development:

- Strengthening the food processing sector to enhance compliance, transparency and traceability of fortification quality
- Data for program design, decision-making, and evaluation
- Evidence-informed standards, regulations, and guidelines and effective monitoring and regulatory control systems
- New solutions for micronutrients and vehicles

### **Strengthening food processing environments** –

While fortification processes can be successfully executed using present-day technology, by simplifying procedures and increasing the accessibility of reliable digital tools, we can improve the compliance, transparency and traceability of food fortification quality of the private sector’s fortification practices, as well as the enforcement actions of governments. Activities may include:

- Working with technology and commercialization partners and public institutions to design, test and scale methodologies of internal quality assurance (QA)/external quality control (QC) systems for food fortification to ensure safety and compliance
- Supporting the deployment of customized technical assistance to food producers and food inspectors; for example, by leveraging micronutrient manufacturers and premix suppliers to build capacity

- Local/regional analytical laboratory development/ capacity development

**Data for program design, decision-making, and evaluation** – Currently, we lack data on the vitamin and mineral status of populations, as well as micronutrient content of peoples’ diets, company fortification practices for specific staple foods and products, and the coverage of adequately fortified food. We also have insufficient data to establish and enforce food fortification guidelines and quantify the full impact of large-scale food fortification on dietary, nutrition, health and cognitive outcomes. By working to close these data gaps, we can monitor



processes more efficiently, diagnose and troubleshoot issues more effectively, share best practices that can be utilized more widely, and have real-time information ready for governments and stakeholders to make informed decisions about how best to address micronutrient deficiencies. Activities may include:

- Supporting government to identify on-going surveillance systems or routine surveys in which assessments of population coverage and program performance, and/or health impact assessment can be integrated.

## WHY A FOCUS ON LARGE-SCALE FOOD FORTIFICATION?

- **Vitamins and minerals have the power to unlock—or undo—human potential.** No matter where we live and no matter what food is on our plate, we all depend on the same core set of nutrients to achieve healthy growth and brain development. Ensuring that all people can consume diets rich in vitamins and minerals is foundational to building a healthy food system and to achieving our global goals.
- Large-scale food fortification is a **powerful and established food systems intervention with a proven track record** of virtually eliminating debilitating vitamin and mineral deficiencies as a public health concern.
- **Large-scale food fortification is a driver of human capital:** it is essential to cognitive development and increased productivity for individuals and generates economic returns for nations.
- Large-scale food fortification is **one solution among many to deliver healthy diets.** It is one of the most powerful tools we have to tackle malnutrition due to its distinct combination of qualities including **scalability, sustainability, and cost-effectiveness.**
- Large-scale food fortification advances our ultimate goal of **healthy, safe, accessible, locally produced diets for everyone.** It improves overall intake of essential vitamins and minerals, **amplifying the success of nutrition and other health interventions.**
- **Large-scale food fortification is key to achieving a healthier, more equitable food system.** When even the poorest households have access to a baseline of essential vitamins and minerals, well-being improves, and **societies become more resilient in times of crisis.**

- Deloping and strengthening ways to generate and aggregate core LSFF metrics (program, dietary, and biological) through innovative modeling to inform decisions on the design, implementation, and monitoring of LSFF programs.
- Building on the Global Fortification Data Exchange (GFDx) to establish a Global Data Alliance and Hub to generate consensus on key LSFF program indicators; aggregate existing primary data; model for gaps using AI to develop a proxy indicator of vulnerability and use these data to reach those with insufficient nutrient intake, with a focus on girls and women; and produce sub-national maps.

**Evidence-informed standards, regulations, and guidelines and effective monitoring and regulatory control systems**

– The first and most essential component of a country’s fortification program is guidance on the technical specifications that need to be mandated for each fortified staple food and condiment. Moreover, public regulatory agencies often lack the data, capacity, and resources to adequately establish and enforce food fortification standards within broader monitoring and regulatory control of food quality and safety standards. By developing more accessible and tailored tools with which governments



can adopt and enforce food safety and fortification guidelines, we can ensure that regulatory practices achieve maximum impact. Activities may include:

- Assistance to governments to fully assess and evaluate the appropriateness of potential food vehicles in terms of consumption patterns, industry structure and fortification feasibility, and evidence for efficacy of fortification.
- Prior to assisting governments to develop regulatory and technical fortification requirements, focus on developing enduring political commitment and an understanding of the need to enforce regulatory and technical fortification requirements.
- Supporting governments to regulate fortification and develop evidence-based fortification requirements and to specify these within food quality and safety standards.
- Supporting governments to integrate limited but effective monitoring activities for enforcement into existing food control activities to effectively enforce food fortification requirements.
- Providing tools and supporting structures to local public sector stakeholders to catalyze the standards setting processes at the national level. We will support local actors in filling regulatory gaps, including defining clear LSFF mandates with effective micronutrient specifications, and supporting public sector nutrition labeling (including logos).

**New solutions** – Research and development to better optimize the stability, bioavailability, combinability, sensory attributes, and cost of micronutrients will enable their greater reach and impact in a wider range of food vehicles. Accelerated research is needed to bring these solutions to market, more quickly. Some activities include:

- Advancing micronutrient encapsulation and assessing new innovations to improve the stability of vitamin A, particularly in dry-form vehicles.

- Investing in improving bioavailability of iron fortificants through novel micronutrient and gut health innovations to improve the impact of iron-fortified foods.

## GLOBAL AND REGIONAL COLLABORATION

In addition to joint activities at the national level, we also intend to collaborate on efforts at the regional and global levels to mobilize new commitments and leadership; re-establish LSFF within food, health and social protection agendas; and ensure that stronger policy and financing for LSFF is one component of an integrated approach to improved diets and nutrition. Activities may include:

- Developing guidance on planning, design, and implementation of fortification of staple foods and condiments based on global guidance and lessons learned
- Collaborating with partners to consolidate and endorse available guidance and resources for LSFF to create a fortification toolkit
- Ensuring coordinated support and aligned resources to country programs by donors and agencies
- Supporting alignment for global fortification data and standards that can be tailored to individual countries and contexts
- Collaborating with the Scaling Up Nutrition (SUN), including the SUN Business Network and SUN Civil Society Network, to support food fortification as an essential public health and food system activity through government, food industry and civil society engagement
- Galvanizing declarations of commitment at the Nutrition for Growth Summit and the International Congress of Nutrition
- Facilitating harmonization of fortification requirements and the development of regional standards for fortification and mutual recognition of regulatory control, where applicable, to facilitate trade

- Advocating for inclusion of fortification standards and regulations of staple food and condiments within strategies and work plans of regional economic communities and trading blocs.

## PUTTING THIS VISION INTO ACTION

Our three institutions have expressed our intention to increase the level of collaboration on our LSFF activities. In the spirit of transparency and accountability, we intend to provide an annual report on our progress and activities. We also intend to hold LSFF strategy alignment meetings for ourselves and other stakeholders who are interested in joining us on a biannual basis, the first of which is intended to be held at the International Congress of Nutrition (IUNS-ICN) in December 2022.

**Our global community has committed to end hunger and malnutrition in all its forms by 2030. This goal requires that we unleash the power of large-scale food fortification at a global scale.** We cannot let this low-cost solution, with a proven history of overcoming dietary inadequacies and preventing and virtually eliminating severe diseases, continue to be underutilized. With continued commitment and collaboration, the vision of improving nutrition and health, and so contributing to reducing preventable deaths, through fortifying foods can become a reality. It's on all of us to deliver the full potential of large-scale food fortification.



## BILL & MELINDA GATES FOUNDATION'S LARGE-SCALE FOOD FORTIFICATION STRATEGY

The Bill & Melinda Gates Foundation's large-scale food fortification (LSFF) strategy aims to increase and sustain coverage of adequately fortified foods to populations most at risk of vitamin and mineral deficiencies. Our strategy focuses on five interrelated workstreams that address key challenges:

- **Addressing Data Gaps:** Data collection on micronutrient deficiencies is costly and gaps provide an incomplete view of deficiencies. Our work will focus on innovative partnerships and digitized modeling to increase access to and use of data; inform standards and guidelines; and improve decision-making and evaluation.
- **Advancing R&D:** For stronger biological impact, additional innovation is needed to enhance the types, levels, and combinability of micronutrients in food vehicles. Additionally, further formulation development and clinical evidence generation is required to advance new food vehicles in an effort to satisfy diverse consumption patterns and reach broader populations.
- **Increasing Technical Capacity:** Limited fortification experience and capacity undermine fortification quality, enforcement, and transparency. Our B2B Technical Assistance Accelerator will strengthen production and distribution capacities of fortified food producers in low- and middle-income countries (LMICs).
- **Strengthening Standards:** Standards are often incomplete and insufficient, covering only 1-2

food vehicles per country if they exist at all. We will e.g. work with global partners to develop new and updated guidelines for fortification to inform standards and regulations via a Standard Setting Accelerator.

- **Digital Quality Assurance:** Only 15-50 percent of fortified foods comply with standards, largely due to ineffective quality assurance and control. This work will focus on improving the transparency of fortification quality captured through digital tools in factories, which will help to incentivize engagement of food producers, reduce enforcement burden for governments, and improve overall compliance with fortification standards.



## UNICEF'S LARGE-SCALE FOOD FORTIFICATION STRATEGY

UNICEF's [Vision and Approach to Advance on Large Scale Food Fortification](#) (LSFF) describes priority actions to ensure "better foods and diets for children through actions in food supply chains," in particular, but not limited to, school-age children, adolescents and women. As micronutrient deficiencies are largely driven by poor diets, UNICEF is prioritizing LSFF programs, and more specifically strengthening existing salt iodization programs and scaling up fortification of cereal flour and edible oils within its focus on food systems transformation for children, adolescents and women. UNICEF's work on large-scale food fortification will focus on achieving effective and sustainable mandatory fortification of selected staple foods and condiments in countries where micronutrient deficiencies exist and necessary conditions for sustainable and effective mandatory fortification can be achieved.



UNICEF’s support will prioritize government engagement, partnership convenings, policy formulation, program design, and public communication. UNICEF will continue to provide strategic support to on-going implementation which is ideally taking place within national structures, systems, and budgets. Within the food systems transformation approach, UNICEF will develop and strengthen linkages between mandatory staple food fortification and efforts to reduce intakes of sugar, salt, and saturated and trans-fatty acids in processed foods through regulation, product reformulation and front-of-pack warning labels.



## USAID’S LARGE-SCALE FOOD FORTIFICATION STRATEGY

USAID and its global partners are elevating large-scale food fortification (LSFF) as a feasible and sustainable food system intervention to improve public health, create economic growth, and build resilience by providing people with essential vitamins and minerals that are insufficient in their diets. Over the past five decades, USAID has assisted in mitigating micronutrient inadequacies through multiple and complementary interventions. Historically, USAID food fortification initiatives have been primarily funded and driven programmatically by our Bureau for Global Health (GH) and Mission health offices, as well as promoting use of fortified foods in our Food for Peace (FFP) humanitarian assistance programs.

However, the food industry—specifically the food processing sector—has the central role in LSFF. LSFF aligns with and will be implemented through Agency programming to achieve Feed the Future objectives by leveraging a comprehensive food system approach that extends beyond the farm level and across all market actors, particularly regarding food processing. LSFF is most likely to succeed and be sustained when we take a whole-of-business approach, supporting food processors by assisting in business planning, access to finance, operation efficiencies, compliance with food quality and safety standards, and marketing. This comprehensive approach makes the food processing sector profitable and resilient, while improving diets and nutrition.

At the same time, for LSFF to be successful, governments must set feasible standards for the food industry and establish and maintain food quality and safety monitoring and regulatory control systems that are extensive, equitable, and effective to assure a level competitive “playing field,” particularly for the mandatory fortification of staple foods and condiments. Civil society and academia have key roles in enhancing accountability of both government and the food industry, as well as monitoring, and evaluation of LSFF programs.

USAID has developed a [LSFF Results Framework](#) to guide our global and country investments and programming, working through the private sector, governments, and civil society. While LSFF will be integrated into multiple central and Mission activities, we are planning to procure a new 5-year, central LSFF support activity to lead these efforts, primarily through our Feed the Future food systems programming, but also in coordination with and support of complementary activities with our Global Health and Humanitarian Assistance Bureaus.