LARGE-SCALE FOOD FORTIFICATION: BUILDING NUTRITIOUS, RESILIENT & SUSTAINABLE FOOD SYSTEMS

Large-Scale Food Fortification (LSFF) will advance agriculture-led economic growth, resilience, and nutrition priorities. USAID Missions have a critical role to play in the Agency's efforts to integrate LSFF into Feed the Future programs.

WHY?

1. **Good nutrition is vital to human health and development.** Yet, insufficient dietary intakes (inadequacies) of vitamins and minerals continue to affect much of the world's population, particularly women and children, limiting their potential and lifelong well-being and, in severe situations, threatening their survival[1].
2. **LSFF is cost-effective.** When appropriately designed and implemented, one of the most cost-effective and nutrition interventions is LSFF, which entails enhancing the nutrient content of foods during the processing stage. It typically costs less than 2% of the staple food or condiment market price, and those costs are then included in product pricing[2]
3. **LSFF provides a safety** net against vitamin and mineral inadequacies that often occur seasonally or during times of crisis when food supply is low and/or not diverse, as during the current COVID-19 pandemic.

PHOTO CREDIT: THE GLOBAL ALLIANCE FOR IMPROVED NUTRITION

[1] Interventions For Addressing Vitamin And Mineral Inadequacies. USAID, 2019: https://www.usaid.gov/global-health/health-areas/nutrition/technical-areas/vitamins and minerals-brief

[2] Guidelines on Food Fortification with vitamins and minerals, WHO: https://www.who.int/publications/i/item/9241594012

4. **Uptake is easy for target populations,** since effective LSFF strategies target food items that are already regularly consumed (e.g., flours, rice, oil, sugar, and salt) and thus do not require consumers to change or adopt new dietary behaviors.

HOW?

1. **Partner with the private sector.** The food industry—specifically the food processing sector—has the central role in LSFF. LSFF is most likely to succeed and be sustained when we take a whole-of-business approach, supporting 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 more economically viable and resilient, in addition to improving diets and nutrition.
2. **Partner with governments, civil society, and academia.** For LSFF to be successful, governments must set feasible standards for the food industry and establish and execute monitoring and regulatory control systems that are extensive, equitable and effective to assure a level competitive playing field. Civil society and academia have roles in enhancing accountability, monitoring, and evaluation of LSFF programs.
3. **USAID can help determine where to invest and how.** Recently, USAID developed a LSFF Results Framework, and a programming guide is forthcoming. The Bureau for Resilience and Food Security (RFS) Center for Nutrition is collaborating actively with the Bureau for Global Health (GH) and the Bureau for Humanitarian Assistance (BHA) to support LSFF activities.

USAID AND GLOBAL PARTNERS ARE ELEVATING LARGE-SCALE FOOD FORTIFICATION (LSFF) AS A FEASIBLE, 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.

THE EVIDENCE FOR LARGE-SCALE FOOD FORTIFICATION

Studies have demonstrated the benefits that well-designed and regulated fortification systems can yield in multiple countries. A 2019 systematic review examined the effects of LSFF across a range of food vehicles (including wheat and maize flour, rice, cooking oil, sugar and salt) in multiple countries. The results showed that LSFF was associated with a 41% reduction in the odds of neural tube defects and a 34% decline in anemia prevalence, with the greatest impact for women of reproductive age. It also estimated that LSFF with vitamin A has the potential to reduce global vitamin A deficiency in 2.7 million children per year, protecting children from impaired immune response and altered growth and development[3]. Another review published in 2021 showed that zinc-fortified foods, consumed alone or with other vitamins and minerals, decreased the prevalence of zinc deficiency by 55%[4]. Evidence also

[3] Keats, Emily C et al. "Improved micronutrient status and health outcomes in low- and middle-income countries following large-scale fortification: evidence from a systematic review and meta-analysis." The American journal of clinical nutrition vol. 109,6 (2019): 1696-1708. http://doi.org/10.1093/ajcn/nqz023

[4] Becky L Tsang, Erin Holsted, Christine M McDonald, Kenneth H Brown, Robert Black, Mduduzi N N Mbuya, Frederick Grant, Laura A Rowe, Mari S Manger, Effects of Foods Fortified with Zinc, Alone or Co-fortified with Multiple vitamins and minerals, on Health and Functional Outcomes: A Systematic Review and Meta-Analysis, Advances in Nutrition, 2021;, nmab065, https://doi.org/10.1093/advances/nmab065

shows that LSFF is cost-efficient: iron fortification of flours costs about US$.05 per person per year and fortification with iodine and zinc is even lower[5].

USAID'S APPROACH TO LARGE-SCALE FOOD FORTIFICATION

Globally, LSFF has been embraced and practiced by many countries for decades[6]. Over the past five decades, USAID has been a leader in mitigating vitamin and mineral inadequacies through multiple and complementary interventions, including LSFF fortification. Historically, USAID food fortification initiatives have been primarily funded and driven programmatically by Bureau for Global Health and Mission health offices. However, LSFF has significant and strategic equity under the Economic Growth (EG) & Agriculture portfolios. LSFF supports the Agency's efforts to achieve Feed the Future objectives by leveraging a comprehensive food system focus extending beyond the farm level and across market actors, particularly regarding food processing. Furthermore, it is an intervention that complements and builds on existing EG interventions that are maximizing food systems to improve diets—specifically, private sector engagement, food processing, food safety, policy, and trade. Ultimately, LSFF should be an integral part of all Feed the Future programs and can deliver results across the three Strategic Objectives of the Global Food Security Strategy, including our work in private sector engagement and food system policy work.

THE GLOBAL AGENDA FOR LARGE-SCALE FOOD FORTIFICATION

A nutritious, resilient and sustainable food system includes processed foods that meet quality and safety standards, including LSFF standards for staple foods and condiments. The importance of LSFF is globally recognized and is a re-emerging priority for international convenings in 2021, particularly the UN Food Systems and Nutrition for Growth Summits. USAID is well-positioned to continue leading efforts for LSFF through global leadership, context-specific expertise, and partnerships with governments, the private sector, and civil society. With continued commitment and collaboration for such proven and system-based solutions, the vision of dietary adequacy and reducing preventable morbidity and mortality through fortifying foods is one that can be achieved.

Questions? Comments? Requests for assistance?
Please contact Ingrid Weiss (iweiss@usaid.gov)

[5] Guidelines on Food Fortification with vitamins and minerals, WHO: https://www.who.int/publications/i/item/9241594012

[6] Mkambula, Penjani et al. "The Unfinished Agenda for Food Fortification in Low- and Middle-Income Countries: Quantifying Progress, Gaps and Potential Opportunities." Nutrients vol. 12,2 354. 29 Jan. 2020, http://doi.org/10.3390/nu12020354