

Mighty Nutrients Coalition Policy Brief

# Preventing Micronutrient Deficiencies Worldwide

Advocacy Actions to Support WHO's World Health Assembly Resolution on Food Fortification March 2023

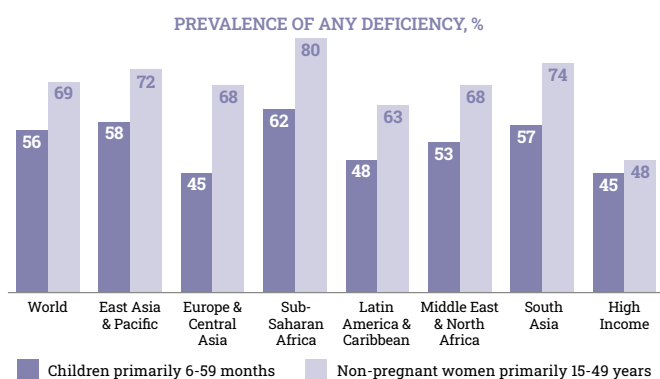
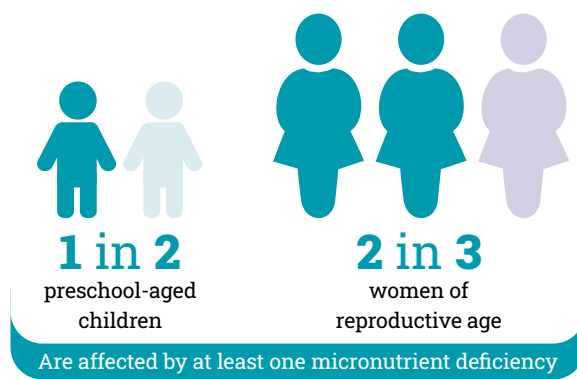


## Summary

- Micronutrient deficiencies (also known as hidden hunger) are a significant public health problem globally. Pre-pandemic estimates found **1 in 2** children and **2 in 3** women suffering from a micronutrient deficiency. Levels of deficiency are likely to be even higher today given the protracted global food crisis arising from the COVID pandemic and Russia's invasion of Ukraine.
- Large Scale Food Fortification (LSFF) adds essential minerals and vitamins to widely consumed foods and is a highly scalable and cost-effective solution proven to prevent micronutrient deficiencies including in low- and middle-income countries.
- Unfortunately, a large unfinished agenda on food fortification remains. Re-doubling collective efforts to improve the reach and quality of food fortification programs has enormous potential to combat hidden hunger worldwide. **84** countries could benefit from establishing new mandatory fortification programs, and most existing programs must be strengthened to reach more people with high-quality fortified food.
- To ensure the success of LSFF, governments can establish and strengthen national mandatory fortification standards as well as a regulatory frameworks that ensure access to high-quality fortified foods across the entire population. Strong regulations also help ensure a level playing field for fortified food producers where all are held to the same standard.
- A resolution on the agenda of this year's World Health Assembly (WHA) calls on member states to establish and strengthen food fortification programs to combat the growing global crisis of micronutrient malnutrition and requests the Director General of WHO to provide guidance and technical support to Member States in this regard. The resolution will come before the WHA in late-May 2023.

## Context

The [latest evidence](#) published in The Lancet Global Health estimates that **1 in 2** preschool-aged children and **2 in 3** women of reproductive age worldwide have at least one micronutrient deficiency, a health issue that is prevalent even in high-income countries.<sup>1</sup> These deficiencies cause a range of negative health outcomes, including impaired cognitive development, poor growth, and increased susceptibility to infectious diseases. While the estimates in the Lancet study are alarming, they likely understate the problem, as they predate recent events, such as the global food crisis resulting from Russia's invasion of Ukraine, which have left **40%** of the world's population unable to afford a healthy diet.<sup>2</sup>



Source: G.A. Stevens, T. Beal, M.N.N. Mbuya, et al., Micronutrient deficiencies among preschool-aged children and women of reproductive age worldwide: a pooled analysis of individual-level data from population-representative surveys. *Lancet Global Health*. 2022;10(11):E1590-E9.

Food quality and availability are expected to decline in the near to medium term as yields of micronutrient rich crops are reduced due to extreme weather. The micronutrient content of staple foods such as wheat and rice is also decreasing due to climate change.<sup>3</sup> Both trends make it more challenging for vulnerable populations to access a micronutrient-rich diet.

## Large Scale Food Fortification: An evidence-based intervention to prevent micronutrient deficiencies.

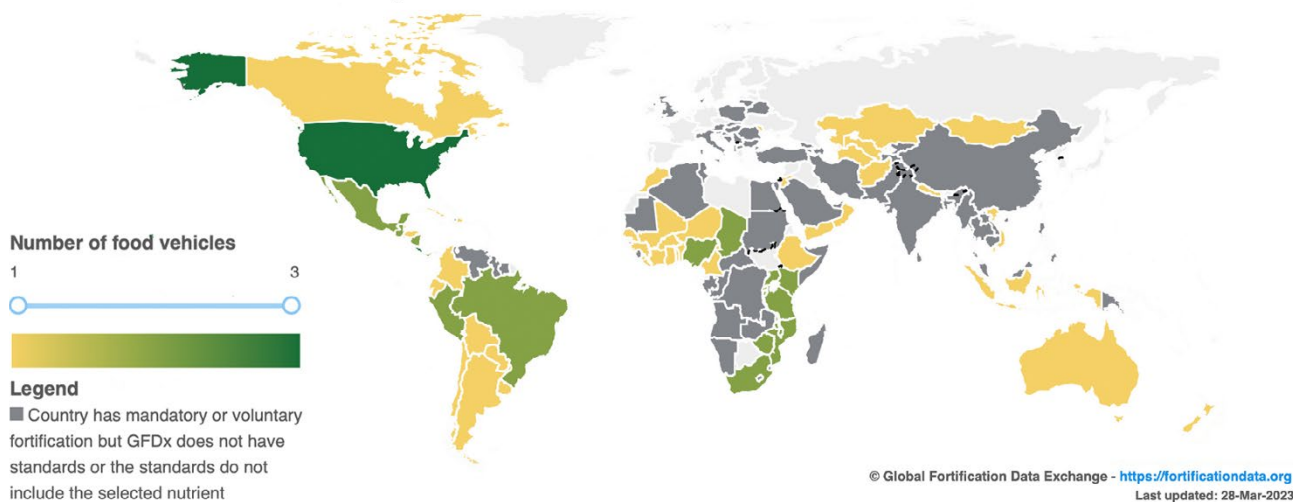
Large Scale Food Fortification (LSFF) adds essential vitamins and minerals to widely consumed foods during processing. It is one of the most cost-effective interventions to reduce micronutrient deficiencies<sup>4</sup> with an average cost/benefit ratio of **1:27**.<sup>5</sup> Food fortification has been found to reduce the prevalence of anemia by **34%** and reduce the odds of goiter by **74%**.<sup>6</sup> At least 84 countries could benefit from establishing new mandatory fortification programs. And most existing programs need to be strengthened to ensure access to high-quality fortified food across the entire population.<sup>7</sup>



- 1 Stevens GA, Beal T, Mbuya MNN, Luo HQ, Neufeld LM. Micronutrient deficiencies among preschool-aged children and women of reproductive age worldwide: a pooled analysis of individual-level data from population-representative surveys. *The Lancet Global Health* 2022; 10: e1590-99. [https://doi.org/10.1016/S2214-109X\(22\)00367-9](https://doi.org/10.1016/S2214-109X(22)00367-9)
- 2 Food and Agriculture Organization of the United Nations (FAO), *In Brief to The State of Food and Agriculture 2021: Making Agrifood Systems More Resilient to Shocks and Stresses* (Rome: FAO, 2021). <https://doi.org/10.4060/cb7351en>
- 3 Semba RS, Askari S, Gibson S, et al. The Potential Impact of Climate Change on the Micronutrient-Rich Food Supply, *Advances in Nutrition*. 202; 13(1): 80-100. <https://doi.org/10.1093/advances/nmab104>.
- 4 Hoddinott J, Rosegrant M, Torero M. Investments to reduce hunger and undernutrition, *Global Copenhagen Consensus*, 2012. <https://www.copenhagenconsensus.com/sites/default/files/hungerandmalnutrition.pdf>
- 5 Garret G, Matthias D, Keats E, Mduuzi M, and Wouabe E. "Doubling Down on Food Fortification to Fortify the Future." Bill & Melinda Gates Foundation, 24 October, 2019. <https://www.gatesfoundation.org/ideas/articles/food-fortification-to-fortify-the-future>.
- 6 Keats EC, Neufeld LM, Garrett GS, Mbuya MNN, Bhutta ZA. "Improved micronutrient status and health outcomes in low- and middle-income countries following large-scale fortification: evidence from a systematic review and meta-analysis." *Am J Clin Nutr*. 2019 Jun 1;109(6):1696-1708. <https://doi.org/10.1093/ajcn/nqz023>. PMID: 30997493; PMCID: PMC6537942.
- 7 Mkambula P, Mbuya MNN, Rowe LA, Sablah M, Friesen VM, Chadha M, Osei AK, Ringholz C, Vasta FC, Gorstein J. The Unfinished Agenda for Food Fortification in Low- and Middle-Income Countries: Quantifying Progress, Gaps and Potential Opportunities. *Nutrients*. 2020 Jan 29;12(2):354. <https://doi.org/10.3390/nu12020354> PMID: 32013129; PMCID: PMC7071326.

The unacceptably high prevalence of folic acid-preventable spina bifida and anencephaly is a striking example of preventable death and morbidity for which LSFF is part of the solution. These neural tube birth defects are among the top contributors to child morbidity without a cure and most affected pregnancies result in miscarriages, terminations, stillbirths, or under-five mortality. Food fortification with folic acid reduces the occurrence of neural tube defects by **41%**.<sup>8</sup> Yet, only **69** countries currently mandate fortification of cereal grains with folic acid and other micronutrients.<sup>9</sup>

### Countries with mandatory fortification with folic acid, *Global Fortification Data Exchange*



Large scale food fortification is unique among nutrition interventions in that implementation is led by the private sector.<sup>10</sup> To ensure that micronutrient deficiencies are appropriately addressed, countries should:

- a) Set standards that guarantee safe upper limits of micronutrients in food fortification.
- b) Create appropriate laws and regulations on food fortification.
- c) Consider the micronutrient needs of the population, acceptability, and feasibility of food vehicles, and the effect of overlapping micronutrient interventions.<sup>11,12</sup>

LSFF is an essential part of national and regional efforts to combat micronutrient deficiencies but it is not a silver bullet. It works best as part of a package of complimentary interventions, including biofortification, micronutrient supplementation to vulnerable populations,<sup>13</sup> and improving the affordability, availability, and desirability of micronutrient dense foods.

Despite widespread evidence of LSFF's effectiveness,<sup>14</sup> it is currently underutilized, especially in low- and middle-income countries and in Europe. A resolution on the agenda of the 2023 World Health Assembly (WHA), "*Accelerating efforts for preventing micronutrient deficiencies, spina bifida and other neural tube defects through safe and effective food fortification*,"<sup>15</sup> has garnered significant global support, having been co-sponsored by **37** Member States and endorsed by over **70** organizations from the nutrition, disability rights, and health policy sectors.

8 Keats EC, Neufeld LM, Garrett GS, Mbuya MNN, Bhutta ZA. Improved micronutrient status and health outcomes in low- and middle-income countries following large-scale fortification: evidence from a systematic review and meta-analysis. *Am J Clin Nutr*. 2019 Jun 1;109(6):1696-1708. doi: 10.1093/ajcn/nqz2023. PMID: 30997493; PMCID: PMC6537942.

9 Global Fortification Data Exchange - <https://fortificationdata.org/map-number-of-food-vehicles>. Accessed 1/March/2023

10 Durotoye T, Yusufali R, Ajieroh V, Ezekannagha O. Building the Commitment of the Private Sector and Leveraging Effective Partnerships to Sustain Food Fortification. *Food and Nutrition Bulletin*. 2022;0(0). doi:10.1177/03795721221123699

11 World Food Programme (WFP), 2022. Food fortification: An effective and safe way to fight micronutrient malnutrition and its consequences.

12 Friesen V, Mbuya M, Neufeld L, Weiringa FT, A Framework for Evidence-Based Decision Making in Large-Scale Food Fortification Programs, *Current Developments in Nutrition* 2020; 4(2). [https://doi.org/10.1093/cdn/nzaa067\\_029](https://doi.org/10.1093/cdn/nzaa067_029)

13 Osendarp S. "The world's most cost-effective health intervention is being overlooked." *SDG2 Advocacy Hub*, 24 March 2021. Available from: <https://sdg2advocacyhub.org/index.php/news/worlds-most-cost-effective-health-intervention>

14 Osendarp SJM, Martinez H, Garrett GS, Neufeld LM, De-Regil LM, Vossenaar M, et al. Large-Scale Food Fortification and Biofortification in Low- and Middle-Income Countries: A Review of Programs, Trends, Challenges, and Evidence Gaps. *Food and Nutrition Bulletin*. 2018;39(2):315-31. <https://doi.org/10.1177/0379572118774229>

15 *Accelerating Efforts for Preventing Micronutrient Deficiencies and Their Consequences, Including Spina Bifida and Other Neural Tube Defects, through Safe and Effective Food Fortification*. The Seventy-sixth World Health Assembly, 2023. Available from: [https://apps.who.int/gb/ebwha/pdf\\_files/E152/B152\\_CONF5-en.pdf](https://apps.who.int/gb/ebwha/pdf_files/E152/B152_CONF5-en.pdf)

This WHA food fortification resolution calls on Member States and the WHO Director General to take specific actions to deploy food fortification as a critically important tool in the fight against malnutrition, including by supporting, strengthening, and expanding food fortification programs where appropriate. The resolution establishes a biennial reporting cadence to monitor and assess the progress of national food fortification programs through 2030.



**Member States** can support the food fortification resolution by making an oral or written statement of support at this year's World Health Assembly, sharing their commitment to large scale food fortification as part of their national nutrition strategy now and in the future. Sharing national plans to strengthen food fortification programs is particularly helpful as it may encourage other Member States to do likewise.

## Policy Recommendations

- Support the WHA resolution *“Accelerating efforts for preventing micronutrient deficiencies and their consequences, including spina bifida and other neural tube defects, through safe and effective food fortification.”* **In addition to voting for the resolution, Member States are encouraged to make an oral or written statement of support for the resolution, sharing their commitment to LSFF as well as plans to strengthen national fortification programs.**
- UN Agencies, donor countries, and implementing partners should scale up technical support and guidance for mandatory food fortification programs in low- and middle-income countries
- Investment priorities to strengthen fortification programs should include:
  - ◆ Micronutrient data collection to guide LSFF standards and policies and to track the quality, coverage, and impact of programs.
  - ◆ Expanding programs to include new food vehicles and micronutrients in accordance with national and regional consumption patterns and micronutrient deficiencies.
  - ◆ Strengthening regulations and enforcement to ensure fortification quality and a level playing field for fortified food producers.
  - ◆ Technical support for fortified food producers to strengthen quality control and assurance.



The [Mighty Nutrients Coalition](#) is a collective evidence-based voice conducting and supporting advocacy to global leaders, policymakers, donors and national governments for increased investments and policies that support micronutrient-rich diets and interventions. To capitalize on the renewed global focus on micronutrient deficiency, the coalition seeks to strengthen advocacy across the sector through clear and rigorous evidence and recommendations. The Coalition hosted by the [Micronutrient Forum](#) includes over 60 organizations and 200 signatories from 52 countries.