



# Strengthening Micronutrient Resilience

## Protecting vulnerable communities facing global food crises

NUTRITION FOR RESILIENCE WHITE PAPER #4 | August 2023

## Summary

A confluence of overlapping crises and shocks has led to an unprecedented global food crisis threatening global food and nutrition security. According to the latest State of Food Security and Nutrition (SOFI) report, approximately 735 million people worldwide faced hunger in 2022—an astounding 122 million more than 2019. Moreover, more than 3.1 billion people, approximately 42 percent of the global population, were unable to afford a healthy diet in 2021—representing an overall increase of 134 million people compared to 2019. Vulnerable communities faced with hunger and inadequate diets also suffer from micronutrient deficiencies and on an enormous scale. The challenge is to tackle the current global food crisis and address urgent food and nutritional needs while also building the foundation for micronutrient resilience that will help protect the nutrition well-being of populations faced with protracted and/or recurring crises. Key actions by national governments, donors, and multi-lateral agencies are needed to improve population micronutrient health. These include sustaining and implementing nutrition-sensitive social protection programs, supporting pro-micronutrient policies and investments, mobilizing more resources for nutrition, protecting national nutrition budgets, implementing pro-nutrition policy incentives, and honoring government and donor commitments already made. The task in the long term is to build resilient, sustainable food systems that support people's consumption of safe, nutritious, and affordable diets so that individuals, communities, and systems are able to withstand, adapt, and thrive in the face of adversity.

# Introduction

A confluence of overlapping crises and shocks has led to an unprecedented and protracted global food crisis. Ever-increasing disruptions from rising climate challenges, the extended health and economic effects of the COVID-19 pandemic, and the consequences of multiple conflicts, including the war in Ukraine, have thrown millions of people into a food and nutrition emergency. World hunger surged in the years following the global COVID-19 pandemic with a staggering 735 people facing hunger in 2022—approximately 122 million more than 2019.<sup>1</sup> Global levels of acute food insecurity (IPC\* Phase 3 or above) alarmingly continue to rise with 258 million persons across 58 countries affected in 2022 (Figure 1)—up from 193 million in 2021—as a result of conflicts, including the war in Ukraine, economic shocks and weather extremes.<sup>2</sup> Unfortunately, according to the 2023 SOFI report, the Sustainable Development Goal of ending hunger by 2030 will not be met based on current trends.<sup>1</sup>

Food crises, particularly rising prices of nutritious foods, put healthy diets farther out of reach for millions, increasing their risk of micronutrient deficiencies. Today, more than 3.1 billion people, approximately 42 percent of the global population, are unable to afford a healthy diet—an overall increase of 134 million people compared to pre-pandemic levels in 2019.<sup>1</sup>

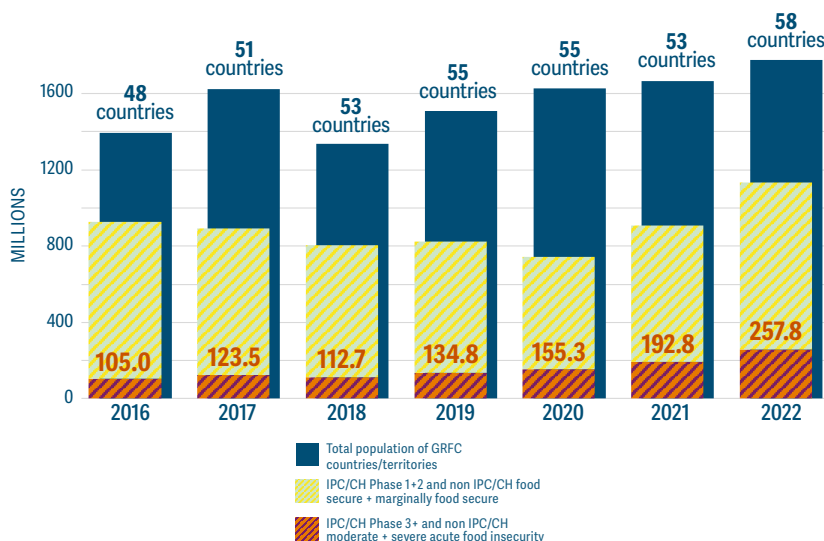
\* Integrated Food Security Phase Classification

Tragically, the ripple effects of such shocks disproportionately threaten the nutrition status of women and children in vulnerable food-insecure contexts. For instance, analyses on food crises over the past two decades by the International Food Policy Research Institute (IFPRI) and the Standing Together for Nutrition (ST4N) Consortium show that a five percent rise in food prices is associated with a nine percent rise in the risk of child wasting (Figure 2).<sup>3</sup>

New research published in The Lancet, based on surveys between 2003 and 2019, shows that half of all preschool-age children and two-thirds of women of reproductive age globally suffer from at least one micronutrient deficiency.<sup>4</sup> In several countries in South Asia and Sub-Saharan Africa, 9 in 10 women have at least one micronutrient deficiency.<sup>4</sup> These findings suggest that the previous estimate of 2 billion people with micronutrient deficiencies significantly underestimates the prevalence of these deficiencies. If school-age children, men, and older adults were included, it is likely that micronutrient deficiencies would be much more widespread than previously believed.<sup>4</sup>

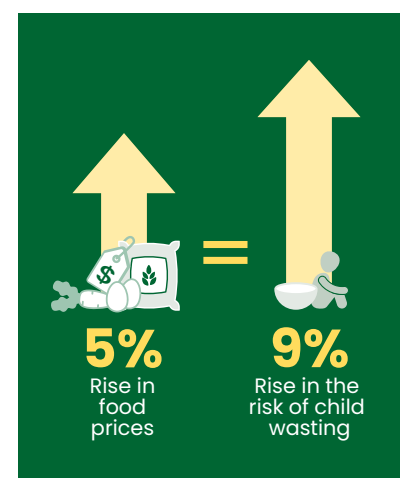
Although the impacts of micronutrient malnutrition might be less visible than those of hunger, they are no less dangerous. Micronutrient deficiencies can increase the risk of illness and death in the short term and pose irreversible and multigenerational health challenges in the long term.<sup>5</sup>

**Figure 1. Number of people in Global Report on Food Crises countries/territories facing acute food insecurity, 2016–2022**



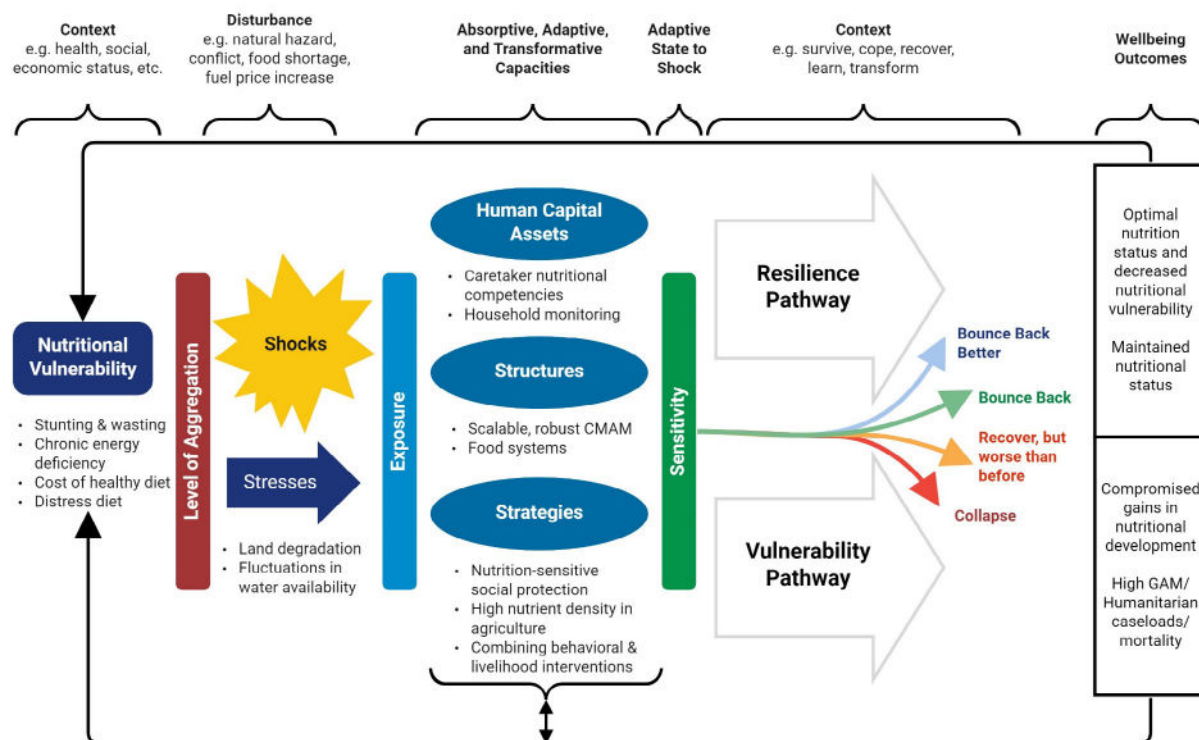
Source: FSIN, using data from 2016–2022

**Figure 2. Food price inflation dramatically impacts wasting**



Source: Global food crisis impact on child wasting in vulnerable communities. ST4N; 2022

**Figure 3. Nutrition and resilience conceptual framework**



Source: N. Mock and J. Jennings, *Nutrition and Resilience: Discussion Brief on Better Integration of Nutrition into Resilience-Strengthening Programs* (Washington, DC: Resilience, Evaluation, Analysis, and Learning [REAL] Award, 2022).<sup>6</sup> Note: CMAM = community management of acute malnutrition; GAM = global acute malnutrition.

Among other things, micronutrient deficiencies lead to increased susceptibility to infections, birth defects, reduced child growth and development, decreased educational outcomes and work productivity, and even death.<sup>4</sup>

In the context of the global food crisis, it is clear that nutrition both contributes to and is an outcome of resilience (Figure 3).<sup>6</sup> Individuals and households that are more resilient to shocks and stresses can improve their nutritional status in the short term and their physical development, human capital,

and economic productivity in the longer term. At the same time, better-nourished people are likely to be more resilient to shocks because good nutrition status has positive impacts on their health and earning potential. This can be attributed to improved micronutrient status of these populations. Therefore, the challenge is to address the current global food crisis in a way that addresses immediate food and nutritional needs, while also building a foundation for more resilient systems that support micronutrient resilience and help prevent a pattern of crisis after crisis.

## Micronutrient Nutrition During Food Crisis

According to Webb and Thorne-Lyman, "Pre-existing malnutrition influences how a crisis unfolds, and responses must be tailored accordingly."<sup>7</sup> Even before the current global food crisis that began in 2020, micronutrient malnutrition was a severe public health problem, as shown by the results of the 2022 Lancet Global Health study.<sup>4</sup> Hundreds of millions of households consumed diets that were inadequate in terms of vitamins and minerals, even if they provided sufficient calories and protein. The problem is partly due to the fact that healthy, diverse diets made up of nutrient-dense

foods are widely unaffordable.<sup>1</sup> For example, in many of the 50 countries that depend on grain imports from Russia and Ukraine, such as Egypt and Pakistan, more than 70 percent of the population could not afford a healthy diet even before the war.<sup>8</sup>

When people face shocks that reduce their income or result in higher food prices, they tend to switch from more nutrient-dense but costly sources of calories, like fruits, vegetables, and animal-source foods, to cheaper sources of



calories, like starchy staples, cereals, oils, and nonperishable processed foods.<sup>9</sup> They may also simply consume less food overall; for example, adults may skip meals to ensure their children have enough to eat.<sup>7</sup>

Widespread in normal times, micronutrient malnutrition is likely to become even more common and more severe during shocks that affect food prices and availability, including in the current food crisis.<sup>7</sup> In an emergency, people may lose their livelihoods and food crops, experience interruptions in their food supplies, suffer from diarrheal diseases that cause nutrient losses, and be afflicted with infectious diseases that suppress their appetite while increasing their need for micronutrients, exacerbating micronutrient deficiencies. These deficiencies hit pregnant women, lactating women, and young children hardest because these groups have the greatest need for vitamins and minerals and are the most susceptible to harmful consequences when deficiencies occur.<sup>10</sup>



## Micronutrient Interventions During Crisis

Given the underlying level of micronutrient malnutrition and the recent confluence of shocks, humanitarian interventions are a first step in improving the micronutrient status of millions of people.

The initial challenge is to target provision of micronutrients to those who most need them, typically by supplying micronutrient-fortified foods or supplements. In recent decades, humanitarian agencies have moved beyond providing staple grains and started providing food rations that provide critical micronutrients, such as micronutrient powders, therapeutic foods such as pastes, and blended fortified flours.<sup>7</sup> To strengthen shock-responsive, nutrition-specific interventions, governments and humanitarian agencies should prepare for early response to shocks by, for instance, prepositioning food commodities where they are likely to be needed and preparing health systems to treat acute malnutrition.<sup>6</sup> Evidence shows that providing mothers and other caregivers with information about nutrition can help promote breastfeeding and protect the quality of children's diets,<sup>11</sup> even during shocks and crises. In addition, there are successful examples of governments strengthening the capacity of alternative delivery systems, in particular social protection systems, to deliver nutrition services during crises.

Micronutrient deficiencies are often invisible to the people affected or to the caregivers of malnourished children. Information delivered to caregivers through nutrition education or public service announcements, for instance, can link curative and preventive approaches to child micronutrient nutrition, setting the stage for both recovery from micronutrient malnutrition and avoidance of future micronutrient deficiencies.<sup>7</sup> When emergency relief ends, people often lose access to micronutrient-fortified foods. To empower them to achieve micronutrient resilience, they must have both knowledge about micronutrients and health and access to micronutrient-rich foods through markets or other delivery channels.<sup>7</sup>

Funding shortfalls limits the amount of emergency assistance provided. Nutrient-dense products are typically more expensive for humanitarian agencies to provide,<sup>12</sup> leading to choices between maximizing population reach versus providing the right nutrition in situations when funding is tight and needs are high. Indeed, the World Food Programme reports, "While needs are sky-high, resources have hit rock bottom with the global economy reeling from the COVID-19 pandemic, the gap between needs and funding is bigger than ever before".<sup>13</sup> A recent analysis found that in 13 countries with "crisis" levels of hunger, only 7 percent of appeals for urgent hunger-related funding through the United Nations humanitarian system are fully filled.<sup>14</sup>

# Micronutrient Resilience as a Path Out of Crisis

Ensuring the micronutrient resilience of individuals and communities can help prepare them for future crises. Better-nourished people, who typically have better health and more earning potential, have greater capacity to absorb, adapt to, and recover from shocks. On a larger scale, micronutrient resilience can help prevent a pattern in which households, communities, and countries lurch from nutrition crisis to nutrition crisis. To help construct a pathway out of the current food crisis and toward micronutrient resilience, national governments, donors, and multi-lateral agencies need to undertake key actions to improve population micronutrient health:

## Recommendations for Action

1. Sustain and implement nutrition-sensitive social protection programs. Food transfers, cash transfers, and vouchers are critical to help the most vulnerable people maintain access to healthy nutrient-dense diets and micronutrient interventions that are a part of scalable shock-responsive social protection programs in advance and throughout a crisis.
2. Support pro-micronutrient policies and investments that scale up cost-effective micronutrient actions. This includes highly cost-effective approaches and interventions such as food fortification, multiple micronutrient supplementation (MMS), and small-quantity lipid-based nutrient supplements (SQ-LNS), that can improve population micronutrient health across humanitarian and development contexts.
3. Mobilize more resources for nutrition that bridge humanitarian-development agendas. The global food crisis drastically raises the need for financing for nutrition that connects humanitarian and development agendas to both save lives and prevent against all forms of malnutrition in future food crises.
4. Protect national nutrition budgets. It is critical for governments to continue financing for proven nutrition interventions delivered through health systems, for women and children, especially during the first 1,000 days.
5. Implement pro-nutrition policy incentives to promote the availability of nutritious foods. Encouraging businesses and stores to stock and sell a wider range of micronutrient rich food options to increase accessibility and support micronutrient rich dietary choices.
6. Honor commitments already made. Governments and donors must deliver on the nearly 400 commitments, including \$27 billion in new funding, they made at the 2021 Nutrition for Growth Summit.

Furthermore, it is important to mobilize resources to ensure early interventions that mitigate food gaps and safeguard assets and livelihoods.<sup>2</sup> By ensuring a timely and effective response to food crises through nutrition resilience, the loss of livelihoods, the collapse of socio-economic structures, loss of lives, and other detrimental consequences on future generations can be prevented.

Although humanitarian response programming and development assistance programming have traditionally operated in silos, it is increasingly clear that the lines between these two activities have blurred. Vulnerable populations move in and out of periods of emergency within a broader development context. Shocks and stresses often simply exacerbate the underlying poverty, deprivation, and deteriorating well-being that people face, and those conditions are all also linked to micronutrient nutrition. This makes it crucial

to integrate humanitarian and development activities, applying a micronutrient resilience lens across the board.<sup>6</sup>

Urgent emergency nutrition investments coupled with longer-term investments for stronger health and nutrition services and food systems can support the nutrition and resilience of populations in crises-prone contexts. ST4N estimated that \$44 billion would be needed to address the nutrition challenges stemming from the COVID-19 pandemic. This is on top of the \$70 billion World Bank estimate of the funds needed to achieve global nutrition targets over 10 years.<sup>5</sup>

Implementing micronutrient interventions remains a challenge and there is a continuous need to develop even more cost-effective interventions that can deliver nutrients more efficiently. One such intervention is SQ-LNS, which



have shown promise for reducing child stunting, wasting, underweight, and anemia, and for supporting children's cognitive and motor development.<sup>15</sup> Another approach is to scale up proven cost-effective interventions like MMS, which is an antenatal micronutrient intervention that has demonstrated a significant reduction in the incidence of the primary adverse health outcomes associated with micronutrient deficiencies. These include the risk of stillbirths, low birth weight, preterm births, and being small for gestational age.<sup>16</sup> Both SQ-LNS and MMS have recently been highlighted in the latest Copenhagen Consensus report as some of the best investments in nutrition. SQ-LNS has a benefit-to-cost ratio of US\$13.7, while MMS has an even higher benefit-to-cost ratio of US\$37.5.<sup>17</sup>

It is important to explore ways to integrate delivery of micronutrient interventions with other humanitarian and development efforts.

In the long term, the task is to build resilient, sustainable food systems that support people's consumption of safe, nutritious, and affordable diets. This will involve making

food production systems more diverse and environmentally sustainable, reducing waste along the supply chain, improving food transport, processing, and storage to retain the nutritional value of food, and creating policies and environments that support healthy diets.<sup>5</sup>

Besides improving the affordability and accessibility of micronutrient-dense foods, such as animal-source foods, dark green leafy vegetables, and pulses, it will be important to scale up food fortification, biofortification, and micronutrient supplementation.<sup>4</sup> Large scale food fortification (LSFF) is a powerful public health approach to improve the micronutrient status of populations and should be scaled up in accordance with the 2023 WHO/WHA Resolution on LSFF.

In this time and era, shocks and crises are, unfortunately, likely to continue to arise. Micronutrient resilience can contribute to the capacity of individuals, communities, and systems to absorb, adapt to, and transform in the face of risks and shocks, so that every shock does not become a tragedy.



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**Nutrition for  
Resilience**

## Micronutrient Forum 6th Global Conference

The Hague, The Netherlands **& ONLINE**  
16–20 October 2023

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This white paper is part of a series designed to stimulate new thinking and discourse in advance of the Micronutrient Forum's 6th Global Conference "Nutrition for Resilience (N4R): Ensuring Micronutrient Security in an Era of Complex Global Challenges," scheduled for 16–20 October 2023. This hybrid conference, with an in-person component in The Hague, the Netherlands, will explore the interdependence of micronutrient nutrition and the resilience of individuals, communities, and systems, within the context of a world where global crises are the new normal.

**For more information, click [here](#).**

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