

**SUMMARY BRIEF**

Making Food Systems Work for Complementary Feeding in Low- and Middle-Income Countries

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SUMMARY

- Current food systems are failing young children worldwide.
- Limited national supply, high levels of food loss and waste, high prices relative to household incomes, low appeal, and safety concerns are making nutritious complementary foods unavailable, inaccessible, unaffordable, and unappealing for those most in need.
- Despite some successful efforts in adapting food systems to deliver safe and nutritious complementary foods, reaching low-income households with children aged 6-23 months remains a challenge.
- A group of experts gathered in December 2023 to evaluate effective strategies, identify barriers to success in this area, and to define priority actions.
- Food system actors and stakeholders need to collectively act on four core areas that hinder progress: filling the knowledge gaps, building local capacity, addressing implementation barriers related to business constraints and supply chain inefficiencies, and strengthening the enabling environment.
- Thirteen recommendations were proposed across the four core areas, including six priority actions to urgently take forward.

Introduction

Urgent action is needed to reform food systems in low- and middle-income countries (LMICs) to ensure that safe and nutritious complementary foods are available, affordable, accessible, and aspirational (4 As) for low-income populations. This brief makes a case for a synergistic approach that involves increasing the use of safe, nutrient-dense¹ foods (as part of a diverse diet) and, in the contexts where these foods are not available, using appropriate fortified complementary foods² to meet the nutritional needs of children aged 6-23 months.

Food systems are failing children

Food systems worldwide are failing to support the nutritional needs of young children. The first two years of a child's life are a time of enormous growth and development, and of potential vulnerability. High nutrient requirements relative to energy needs means that highly nutrient-dense foods are required to complement breastmilk. What and how children are fed and nourished between the ages of 6 and 23 months has a profound impact on their ability to grow, learn, and thrive, with potential long-term consequences into adulthood and future generations. And yet, according to UNICEF,³ more than two in three children in this age range fail to be fed the diverse range or quantities of foods they need to support their rapid growth and development (Figure 1). Nearly half of children are not eating the foods known to be the most nutrient-rich, such as fruits and vegetables, eggs, fish, and meat, leading to diets that fall short in recommended nutrient levels.

Figure 1. Children are not fed enough of the right foods at the right times



Source: United Nations Children's Fund (UNICEF). *Fed to Fail? The Crisis of Children's Diets in Early Life*. 2021 Child Nutrition Report. UNICEF, New York, 2021.

Six Priority Actions

Core Area 1: Fill the Knowledge Gaps

1. Create compendiums of successes and failures in approaches, policies, and business models to prevent food losses and waste and improve supply chain efficiencies for nutrient-dense foods and commercialized fortified complementary foods.
2. Build the evidence base on consumption and purchase of complementary foods and the impact of food systems approaches on the 4As of complementary foods and business viability.

Core Area 2: Build Capacity across Food System Actors

3. Adopt "R&D-as-a-service" model and provide expertise, capacity strengthening, and technical assistance to food system actors, particularly small and medium enterprises (SMEs), to develop safe, nutritious, and aspirational complementary foods.

Core Area 3: Address the Barriers to Implementation

4. Develop and align financing strategies at the national and organizational levels to mobilize a pipeline of investments to support individual SMEs in bringing more high-quality and safe complementary foods to markets at affordable prices.

Core Area 4: Strengthen the Enabling Environment

5. Organize expert consultations to discuss recommendations for product standards for fortified complementary foods and appropriate monitoring mechanisms.
6. Develop unified standards and tools to inform decisions and guide engagement with food system stakeholders, including the food industry, on appropriate formulation of complementary foods.

¹The term 'nutrient-dense foods' refers to fresh (such as animal source foods like eggs, fish, and meat, fruits and vegetables, pulses, nuts, and seeds) and minimally processed (e.g. dried, fermented, pasteurized) foods that are appropriate for complementary feeding of children aged 6-23 months.

²Fortified complementary foods refers to foods specifically designed for children aged 6-23 months by local, regional, or multinational food companies, lipid-based and/or cereal-based, enriched with additional micronutrients to improve their nutritional quality.

The challenge is greatest for iron, where the highest gap between intake and recommendation is documented (especially between 6 and 12 months of age). Research has shown that insufficient dietary intake of nutrients in the first two years of life can have irreversible effects on children's bodies and brains,³ limiting their potential for growth, development, and learning in childhood, and their ability to earn a decent income later in life.⁴ There is a need to ensure that young children are fed a diverse diet that supports meeting their nutrient needs with the right combination and amount of nutrient-dense foods as part of complementary feeding. In contexts where nutrient requirements cannot be met with unfortified foods alone, fortified complementary foods or nutrient supplements are of paramount importance during this vulnerable period.

Challenges in the food system

Several critical challenges hinder the effectiveness of food systems in improving the 4 As of safe and nutritious complementary foods for low-income populations:

1. Supply chain inefficiencies: Significant post-harvest losses and widespread food waste severely reduce the availability and affordability of nutrient-dense foods, while inadequate infrastructure and poor logistics restrict access, particularly in remote areas.

2. Economic and financial constraints: Ultra-poor and poor, food insecure households in LMICs cannot afford healthy diets. As a result, they often rely on starchy, energy dense foods to address hunger, and tend to neglect nutrient-dense foods. The high costs of producing and distributing nutrient-dense foods and appropriate fortified complementary foods make them unaffordable for many households. This is further compounded by insufficient access to finance and support for key players within the food system, including producers, distributors, and micro-, small and medium enterprises (MSMEs), which hampers the development and scale up of effective solutions to deliver nutritious complementary foods.

3. Policy and regulatory hurdles: The absence of clear regulations and standards (i.e., safety, quality, marketing, labeling, environmental, processing, and trade), and the lack of mechanisms for ensuring accountability for fortified complementary foods,

coupled with weak engagement protocols between the public and private sectors, result in the proliferation of low-quality or inadequately fortified complementary foods in the market. Furthermore, inconsistent food safety standards and enforcement increase the risk of contamination and compromise the safety of fortified complementary foods.

4. Information gaps: Lack of (sub-)national, high-quality data on availability, affordability, and accessibility of nutritious complementary foods; on consumer understanding and aspirations related to complementary feeding; and the viability of business models to reach low-income households, poses challenges. These gaps make it difficult to accurately assess consumer needs, contextualize solutions, and implement effective business strategies.

5. Divergent interests: Conflicting interests between public health organizations and commercial companies, as well as long standing issues with inappropriate marketing of breastmilk substitutes and other foods to children, have led to deeply ingrained distrust, which continues to constrain public-private partnerships.



³United Nations Children's Fund (UNICEF) 2021. *Fed to Fail? The Crisis of Children's Diets in Early Life*. 2021 Child Nutrition Report. UNICEF, New York, 2021

⁴Black, R. E., Victora, C. G., Walker, S. P., et al. 2013. Maternal and child undernutrition and overweight in low-income and middle-income countries. *Lancet*, 382(9890), 427-451. [https://doi.org/10.1016/S01406736\(13\)60937-X](https://doi.org/10.1016/S01406736(13)60937-X).

Opportunities for interventions to transform the food system

While these challenges are daunting, they also present opportunities for interventions to enhance use of nutrient-dense foods as part of a diverse diet, as well as fortified complementary foods for children aged 6-23 months:

1. Supply chain optimization: Technological advances in preservation, processing, temperature control, transportation, storage, and packaging have the potential to significantly reduce post-harvest losses, improve the nutritional quality of food products, and reduce their cost. Simultaneously, improved and contextualized data collection and analysis tools are crucial for effectively monitoring nutrition and food systems, leading to better-informed decisions and policies.

2. Public-private collaboration: Leveraging partnerships and building local capacity to provide funding, technical assistance, and support to MSMEs is key to driving innovative solutions and shared responsibility in strengthening food systems and making them more child-centered. Furthermore, partnerships offer significant opportunities for ethical investments in sustainable, profitable, and equitable food value chains that can enhance the nutrient content of complementary foods in low-income populations.

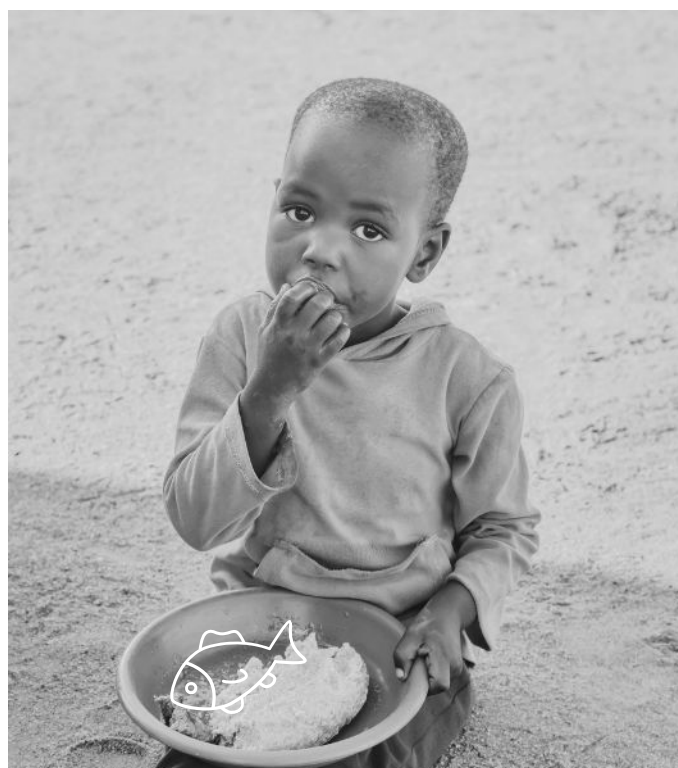
3. Innovative business strategies: Development of viable business strategies such as cross-subsidization, product or market segmentation or offering different product lines at varying price points, and last-mile delivery platforms can help enhance the production, processing, packaging, and distribution of nutritious complementary foods.

4. Enabling policy environment: The development and enforcement of harmonized regional standards for food safety, fortification and nutrition labeling are vital to facilitate business, improve food quality, and ensure that nutritional needs are met across communities. Additionally, implementing policies that offer subsidies and incentives to produce and purchase nutritious complementary foods, support MSMEs in adopting standards as well as help minimize the risks for local enterprises is essential to make nutritious complementary foods more affordable. These policies should

include social protection programs targeted to poor and ultra-poor households to ensure their access to and the affordability of nutritious complementary foods.

5. Global and regional cooperation: Initiatives to stimulate data collection and facilitate the exchange of best practices, innovations, and lessons learned across different regions and contexts play a crucial role in designing more impactful and sustainable solutions. Such efforts can lead to improved strategies and technologies, fostering a more unified and effective approach to addressing global challenges of improving availability, affordability, accessibility, and aspiration of safe and nutritious complementary foods.

Addressing these challenges and capitalizing on the opportunities require a concerted effort from all stakeholders involved in the food system, including governments, businesses, communities, and international organizations. By acknowledging the intricacies and interdependencies of these factors, implementers, policymakers, and other stakeholders can better design and execute effective strategies to make food systems work for complementary feeding in low- and middle-income countries.



Recommendations for making food systems work for complementary foods

In December 2023, over forty experts in food systems, nutrition, and business strategies met to take stock of what works, what are the barriers to scale, and what priority actions should be taken forward. The experts presented successful approaches and discussed barriers to improve the food supply and food environment of nutrient-dense foods as part of diverse diets and fortified complementary foods. They identified thirteen recommendations to effectively strengthen collective action of food system actors and stakeholders to advance this agenda.

Recommendations for Action

Core Area 1: Fill the Knowledge Gaps

- Create compendiums of successes and failures in approaches, policies, and business models to prevent food loss and waste and improve supply chain efficiencies for nutrient-dense foods and commercialized fortified complementary foods.
- Build a robust evidence base on consumption and purchase of complementary foods and the impact of food system approaches on the 4As of complementary foods and business viability.
- Conduct research to better understand low-income consumers, their needs, and aspirations.
- Communicate effectively and with one voice on child diet considerations to guide food system transformation.

Core Area 2: Build Capacity across Food System Actors

- Adopt “R&D-as-a-service” model and provide expertise, capacity strengthening, and technical assistance to food system actors (particularly SMEs) to develop safe, nutritious, and aspirational complementary foods.
- Analyze food systems’ readiness for improving complementary feeding at (sub-)national levels.

Core Area 3: Address the Barriers to Implementation

- Develop and align financing strategies at the national and organizational levels to mobilize a pipeline of investments that support individual SMEs in bringing more high-quality and safe complementary foods to market at an affordable price.
- Collaborate with business strategy and innovation experts to carry out in-country market assessments and business case analysis and to develop viable business models, for safe and nutritious complementary foods.
- Address inefficiencies in the food supply chains between post-production and consumption to reduce food loss and waste and improve affordability of nutrient-dense foods and fortified complementary foods.
- Promote the use of native, underutilized and biofortified crops as a part of complementary feeding.

Core Area 4: Strengthen the Enabling Environment

- Organize expert consultations to discuss recommendations for product standards for fortified complementary foods and appropriate monitoring mechanisms.
- Develop unified standards and tools to inform decisions and guide engagement with food system stakeholders, including the food industry, on appropriate formulation of complementary foods.
- Create accountability networks at national level to strengthen the enabling environment in support of the development and distribution of nutritious and safe complementary foods.

For more information on the expert consultation and the Micronutrient Forum's work on child diets, please visit our website at <https://micronutrientforum.org/emerging-initiatives/child-diets/>

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The Micronutrient Forum is the central global platform for evidence, collaboration, and advocacy to improve micronutrient health. We are a group of experts bringing leaders together to help build and strengthen the evidence base on micronutrient deficiencies and interventions, build consensus, and ultimately drive collective action to create stronger policies, programs, and systems to protect the health of vulnerable communities everywhere.

