



Increasing the Demand for Healthy Diets Evidence on Approaches Across the Food System in Feed the Future Contexts

Pre-Published Document Released for Public Comment September 6, 2024

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ACKNOWLEDGEMENTS

This evidence review was prepared for the Board for International Food and Agricultural Development and is made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents are the responsibility of Tetra Tech and do not necessarily reflect the views of USAID or the United States government.

The authors would like to acknowledge the following individuals for their support:

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- **Laurence B. Alexander**, BIFAD Chair and Chancellor, University of Michigan-Flint
- **Pamela K. Anderson**, Director General Emerita, International Potato Center
- **Marie Boyd**, Associate Professor, University of South Carolina Joseph F. Rice School of Law
- **Rattan Lal**, Distinguished Professor of Soil Science and Director, CFAES Rattan Lal Center for Carbon Management, The Ohio State University
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BIFAD Roundtable Discussants

A virtual roundtable with the following experts was held July 2024 to share successful case studies, evidence-based practices, and examples of collaborative initiatives on increasing demand for healthy diets:

- **Kaleab Baye**, Professor of Human Nutrition, Addis Ababa University; Founder, Research Center for Inclusive Development in Africa
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Prepared for the United States Agency for International Development by the Board for International Food and Agriculture Development (BIFAD) Support Contract, contract number GS00Q14OADU138, Task Order 7200AA21M00003

ACRONYMS & ABBREVIATIONS

BD4FS	Business Drivers for Food Safety	MDD	Minimum dietary diversity
BIFAD	Board for International Food and Agricultural Development	MNF	Marketplace for Nutritious Foods
BOP	Base of the pyramid	MSME	Micro-, small- and medium- sized enterprise
CI	Confidence interval	NCD	Non-communicable diseases
cRCT	Cluster randomized controlled trial	NFSI	Nutrition Friendly Schools Initiative
FAO	United Nations Food and Agriculture Organization	OR	Odds ratio
Food-EPI	Healthy Food Environment Policy Index	PPP	Public-private partnerships
FOPL	Front-of pack labeling	RCT	Randomized Controlled Trial
FRESH	Focusing Resources on Effective School Health	SBC	Social and behavioral change
GDP	Gross domestic product	SDGs	Sustainable Development Goals
GIFNA	Global database on the Implementation of Food and Nutrition Action	SSB	Sugar-sweetened beverage
HIC	High-income country	SUN	Scaling Up Nutrition
ICT	Information and communication technology and digitization	UNDP	United Nations Development Programme
INFORMAS	Research, Monitoring and Action Support	USAID	United States Agency for International Development
IPC	Interpersonal communication	WHO	World Health Organization
LMIC	Lower- and middle-income country		

EXECUTIVE SUMMARY

To achieve the world's ambitious development goals, food systems must provide healthy, safe, accessible, and affordable diets for everyone, especially disadvantaged and nutritionally vulnerable groups like smallholder producers, traders, and consumers in low- and middle-income countries. However, as food systems undergo rapid and drastic changes globally, they are struggling to meet these critical needs simultaneously. One in five preventable deaths is now being attributed to lack of access to healthy diets and it is estimated that between 2 and 3 billion people cannot afford a healthy diet based on local foods and prices¹. While this is in part due to poor supply of nutritious foods, incentivizing consumers to consume healthy diets and, consequently, demand nutritious foods, is a critical part of the global food systems dialogue that is often ignored. The concept of demand for healthy diets includes individual- and household-level demand; efforts from the private sector to market and sell nutritious foods; and the public sector, through procurements, incentives, and regulations.

Optimal nutrition is crucial for achieving the United States Agency for International Development's (USAID) broader mission of ending extreme poverty, promoting resilient and democratic societies, and enhancing national security and prosperity. The USAID Multi-Sectoral Nutrition Strategy (2014–2025)² and the U.S. government's Global Food Security Strategy (2022–2026)³ have put forward agendas to elevate nutrition, food security, and food safety. There is a need, however, for a better understanding of the range of demand-creation actions across the food system, as well as the effectiveness of those actions on

Incentivizing consumers to consume healthy diets and, consequently, demand nutritious foods, is a critical part of the global food systems dialogue that is often ignored.

consumer purchasing and diets, in low- and middle-income contexts relevant to USAID's Feed the Future and Nutrition priority geographies^{4,5}. USAID, therefore, requested that the Board for Food and Agricultural Development (BIFAD)—an independent advisory committee to USAID on food, nutrition, and agriculture—provide recommendations to inform agency strategic policies, programming, and investments on the availability of safe and affordable nutritious foods and, specifically, to gather evidence on how to promote the demand for healthy diets.

The overarching goal of this research was to assess the available evidence, identify evidence gaps, recommend areas for additional research, and use the existing evidence to develop a prioritized set of opportunities for USAID consideration. The research also identifies important areas for USAID's investment in measurement and evaluation. To achieve this goal, this evidence review, prepared for BIFAD, aims to present current evidence on effective policies and interventions that:

1. Enhance the supply of nutritious and safe foods, including through micro-, small- and medium- sized enterprises (MSMEs) within supply chains and markets.

¹ FAO, IFAD, UNICEF, WFP and WHO. 2024. The State of Food Security and Nutrition in the World 2024 – Financing to end hunger, food insecurity and malnutrition in all its forms. Rome.

² <https://www.usaid.gov/nutrition-strategy>

³ <https://www.usaid.gov/what-we-do/agriculture-and-food-security/us-government-global-food-security-strategy>

⁴ [Feed the Future countries included](#): Bangladesh, Burkina Faso, Democratic Republic of Congo, Ethiopia, Ghana, Guatemala, Haiti,

Honduras, Kenya, Liberia, Madagascar, Malawi, Mali, Mozambique, Nepal, Niger, Nigeria, Rwanda, Senegal, Tanzania, Tajikistan, Uganda, and Zambia. Herein, for simplicity, we refer to these as Feed the Future countries.

⁵ Nutrition Priority countries:

<https://www.usaid.gov/nutrition/countries>

- Support consumer demand for healthier diets, including purchasing and consumption of healthy diets.

Several conceptual frameworks of food systems for diets and nutrition were used to organize and narrow the focus of the evidence reviewed in this report. These include the High Level Panel of Experts on Food Security and Nutrition Conceptual Framework of Food Systems for Diets and Nutrition⁶, the USAID Bureau for Resilience and Food Security (REFS) Food Systems Conceptual Framework⁷, the Nutrition-Sensitive Value Chain Framework⁸, developed by the International Fund for Agricultural Development, and the NOURISHING Framework, developed by the World Cancer Research Fund International.

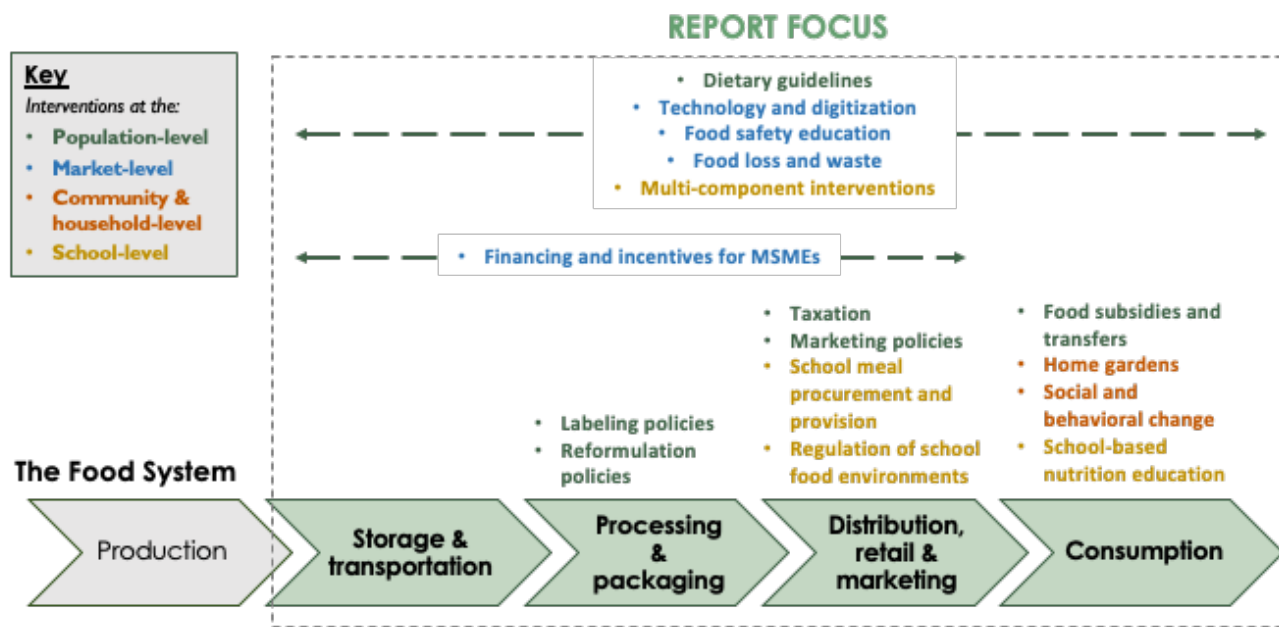
This report reviewed evidence on approaches at the storage and transport; processing and

packaging; distribution, retail and marketing; and consumption stages of the food system aimed at increasing the demand for nutritious foods, as shown in Figure ESI.

Key inputs to the brief included a review of the peer-reviewed and grey literature and perspectives shared at an expert roundtable convened in July 2024⁹. The report outlines preliminary findings from the available evidence, implications, and opportunities for future USAID programming aimed at increasing demand for healthy diets.

This report was prepared with support from Tetra Tech, implementing partner of the BIFAD support contract, and in coordination with BIFAD, USAID’s Chief Nutritionist, and USAID/REFS Center for Nutrition.

FIGURE ESI: FOCUS OF THE REPORT IN THE CONTEXT OF THE FOOD SYSTEM



⁶<https://openknowledge.fao.org/server/api/core/bitstreams/4ac1286e-eef3-4f1d-b5bd-d92f5d1ce738/content>

⁷ <https://www.usaid.gov/feed-the-future/document/rfs-food-systems-conceptual-framework>

⁸<https://www.ifad.org/documents/38714170/41098185/NSVC+4-pager+ENG+WEB.pdf/d11b2326-c832-e85b-2474-3fdb8a374ac9?t=1554814198000>

⁹ The authors reviewed evaluations of single component and multi-component food environment interventions or programs relating to food availability; food accessibility; food marketing and

promotion; food safety; and food pricing. Evaluations included those that assessed the following primary outcomes: direct measures of consumption; diet quality; share of total expenditure on food; and share of food expenditure on non-staple foods; and/or the following secondary outcomes: food security; anthropometric outcomes; and diet-related health outcomes. The review was limited to evaluations of interventions in Feed the Future and USAID Nutrition Priority countries. A full description of the methodology can be found in Annex 1.

Findings

Current evidence drawn from Feed the Future countries encompasses a patchwork of actions largely implemented by the public sector focused on social safety nets to reduce prices and promote diverse diets in low-income households, or behavior change interventions to improve the purchasing and consumption of nutritious foods within households.

The tables below summarize the extent of the evidence available in each area of intervention

analyzed in this evidence review. Green shading indicates there is both a compelling amount of evidence and that the evidence demonstrates effectiveness within the type of intervention. Yellow shading indicates there is some but insufficient evidence and/or the evidence does not clearly demonstrate the effectiveness within the type of intervention. Orange shading indicates that evidence related within the type of intervention is limited and/or does not demonstrate effectiveness.

Key findings on **public sector interventions** include:

Fiscal policies	There is high-quality evidence across various Feed the Future countries on the effectiveness of fiscal policies such as unconditional or conditional cash or in-kind transfers directed at households and individuals (women and children) to improve dietary diversity. Additionally, there is growing interest in designing and implementing cash-plus programs that offer complementary services or inputs that reinforce the developmental impact of the cash benefits.
Social & behavior change interventions	There is mounting evidence on the effectiveness of social and behavior change interventions such as nutrition counseling and education directed at communities or households to improve diets. Importantly, multicomponent interventions that incorporate information, education, and communication also reported greater impacts on diets as compared to single informational interventions.
Regulatory policies	There is limited evidence on the adoption and enforcement of regulatory policies such as national food-based dietary guidelines, as well as marketing and labeling of non-nutritious foods in markets and schools.
Food safety education	There is limited evidence on food safety interventions at community or household levels to educate consumers on safe food.
School meal & nutrition education programs	There is limited evidence on school meal programs and nutrition education interventions that improve dietary intake in children and adolescents.

Of the available evidence on private sector interventions and innovations, the review identified several constraints and opportunities to increase the supply, add value, and increase demand for nutritious and diverse foods.

Key findings on **private sector interventions** include:

Financial access interventions	There is some evidence on effective business models such as public-private partnerships and cooperatives to help raise financial capital and enhance distribution and market access for MSMEs.
Food loss & waste interventions	There are few examples of food loss and waste interventions to improve the supply of safe and nutritious foods in markets.
Food safety interventions	There is limited evidence on food safety interventions and technologies within supply chains and in markets to improve the supply of safe and nutritious foods.

Evidence Gaps

This evidence review revealed significant uncertainty in the existing evidence regarding interventions aimed at enhancing the supply and demand for nutritious foods. Notable research gaps include:

- 1. Research in Low- and Middle-Income Countries.** Research on food environments has traditionally focused on high-income countries, leaving significant evidence gaps in the context of low- and middle-income countries (LMICs).
- 2. Better Understanding of Diverse Target Populations.** There is insufficient evidence in how effective interventions are in creating demand for groups other than women and children, including men, youth, and adolescents.
- 3. Comprehensive Metrics and High-Quality Data.** There is a lack of appropriate metrics and measurement tools and mixed methods research that collects and uses high-quality data across markets, especially related to the use of delivery platforms outside of schools to reach youth, such as social media, and survey data that characterizes cognitive elements of food culture.
- 4. Research on Packages of Interventions.** Few evaluations of multicomponent interventions exist. Because of the breadth of policies and interventions that may impact diets, there is the possibility that one policy or intervention may negate another's effectiveness or have unintended spillover effects (i.e. externality effects, social interaction effects, context equilibrium effects, general equilibrium effects). These interactions require investigation.
- 5. Research and Evaluation at the Retail Level.** Greater understanding is needed on the combined effect of taxes and subsidies in the public sector and both supply and demand interventions for MSMEs in the private sector to mitigate barriers and challenges MSMEs face and ensure their success in increasing the availability, accessibility, and affordability of nutritious and safe foods.
- 6. Implementation Studies.** Current evaluations poorly capture implementation fidelity including intervention exposure, quality, and cost, which are critical for replicating and scaling interventions.

Potential Opportunities for USAID

The evidence suggests several opportunities that USAID could consider pursuing. The following opportunities are based on the evidence of effective interventions identified in the literature reviewed for this report. Each of these opportunities should be assessed in the context of USAID's Nutrition Strategy and operations to determine their relevance and feasibility for USAID.

I. Integrated, Multi-Sectoral Actions



Nutrition policy experts have stated the importance of monitoring and benchmarking food environments around the globe to make progress in their improvement. However, few Feed the Future countries have conducted a landscape assessment of current policies, including the level of implementation to identify and prioritize policy and multi-sectoral actions for the creation of nutritious food environments. This is required to develop a whole-of-government approach for healthy and safe diets, track progress, as well as understand co-benefits and trade-offs across sectors. Additionally, this will allow for opportunities to engage with civil society and the private sector and create a shared vision for food systems transformation.

2. Private Sector Approaches



Private sector engagement in efforts to increase the demand for nutritious foods is critical across businesses of all sizes and scope. There is an urgent need for the public sector to collaborate with businesses to invest in large-scale, continuous, and innovative efforts to ensure food safety. This report focuses specifically on interventions targeting MSMEs.

Opportunities to support MSMEs include developing incubator and accelerator programs that can help to de-risk investments and innovations; building partnerships among smallholder farmers, retailers, and consumers; and sharing resources through interventions such as distribution hubs. More evidence is needed on MSME interventions' ability to increase demand for nutritious food and bring promising innovations to the market faster, more safely, and in a cost-effective manner. There is opportunity for USAID to provide the networks, expertise, and technologies MSMEs need to develop a greater understanding of, and demand for, more diverse nutrient foods and to expand to new markets.

3. Research that Fills Evidence Gaps



As this review suggests, there are evidence gaps on the impact of interventions on nutritious diets beyond micronutrient status and anthropometry. Investment is needed in research within public and private spheres, especially related to multi-component interventions such as cash-plus and social and behavior change plus programs, the combined effect of taxes and subsidies, leveraging the Nutrition Friendly Schools Initiative,

and supply and demand interventions for the private sector like the promotion of food safety across markets and households.

4. Data Integration & Novel Metrics



Novel consumer demand metrics and consolidated publicly available data sources are needed to better understand the context-specific facilitators and barriers to healthy and safe diets across population groups. In particular, this review found an absence of metrics on food choice such as: perceptions of the health and nutrition benefits of food; psychological sociocultural factors that influence food choice; food sensory appeal; and the influence of social interactions and safety and ethical concerns on food choices. The development and use of these metrics could improve intervention design and evaluation. Policy and program design would also benefit from increased collection, analysis, and aggregation of data across the public and private sectors to develop a more complete understanding of the dynamics and linkages at play throughout local food systems. Linking public and private sector data could significantly improve knowledge of what interventions work, in which settings, why, and how they could be scaled. This data would also facilitate tracking of national progress on healthy diets.

5. Targeted Monitoring, Evaluation & Learning



This review identified the need for more real-world evidence on consumer demand interventions for healthy and safe foods within all population groups in LMICs. This includes independent and rigorous monitoring and assessment of approaches to generate consumer demand for healthy diets, such as food-based dietary guidelines, locally-tailored consumer subsidies, and restricting marketing of unhealthy products—all notable gaps in the available evidence. In addition to more research on the effects of these approaches, there is also a

need for cost-effectiveness studies, implementation studies, and impact modelling to provide policymakers, funders, implementers, and other actors with information to guide strategic planning, financial projections, and priority setting to address healthy diets at scale.

6. Exploration of New Food Environments



New food environments, including the digital food environment, are shaping food acquisition and consumption in ways that extend beyond the physical food environment and have implications for diets and nutrition. The literature reviewed highlighted the potential for digital food environments to positively disrupt the food supply by making it more productive, cost efficient, transparent, and agile. However, there is little evidence on the impact of these new environments on the demand for nutritious foods in LMICs. Specifically, new frameworks are required to understand and encourage potential positive impacts of the digital food environment and harness its potential to help consumers make nutritious food choices. Experts consulted for this review noted that policymakers would also benefit from increased understanding of national digital ecosystems, monitoring youth exposure to advertisements for unhealthy products, and best practices for promoting positive digital food environments.

BACKGROUND & STUDY OBJECTIVES

Optimal nutrition is crucial for achieving USAID's broader mission of ending extreme poverty, promoting resilient and democratic societies, and enhancing national security and prosperity. The 2014-2025 Multi-Sectoral Nutrition Strategy and the U.S. Government's Global Food Security Strategy 2022-2026 have put forward agendas to elevate nutrition, food security, and food safety.

Changing what people eat involves an understanding of how consumption is linked to agricultural production patterns (which typically respond to price incentives and predictable demand), food supplies, relative prices, trade policies, household purchasing power, social norms and cultural beliefs, and the changing climate. Interventions seeking to change the environments that cue, reinforce, and maintain diet-related behaviors have been described by Swinburn and others^{10,11,12} as occurring at the macro- and meso-levels, as distinct from the micro- or individual-level.

In support of this, the overarching goal of this research is to assess the available evidence, identify evidence gaps, recommend areas for additional research, and use the existing evidence to develop a prioritized set of approaches and actions for USAID.

Toward this goal, this research brief aims to present current evidence on effective policies and interventions in Feed the Future and USAID Nutrition Priority geographies (which overlap except for Burkina Faso, and therefore are referred to in this brief, for simplicity, as Feed the Future countries – see Figure 1) to inform programming and national policy engagement.

This includes:

1. Enhancing the supply of nutritious and safe foods, including through micro-, small- and medium-sized enterprises (MSMEs) within supply chains and markets.
2. Supporting consumer demand for healthier diets, including purchasing and consumption of healthy diets.

Study Approach

This report focuses on the demand side of the food system, and therefore reviews interventions at the storage and transportation, processing and packaging, distribution, retail and marketing, and consumption components of the food system, as shown in Figure ESI. The researchers analyzed the evidence on demand-side interventions at the population, market, community and household, and school levels, including:


- Fiscal policies, including taxes, subsidies, and transfers
- Regulatory policies, including dietary guidelines, labeling, and reformulation policies
- Financial support and incentives for MSMEs
- Public private partnerships
- Food loss and waste
- Food safety
- Technologies and digitization
- Social and behavior change
- Home gardens and other agroecology community interventions
- Multicomponent interventions
- Food procurement and provision in schools

¹⁰ Peeters, A., 2018. Obesity and the future of food policies that promote healthy diets. *Nat. Rev. Endocrinol.* 2018 147 14, 430–437. <https://doi.org/10.1038/s41574-018-0026-0>

¹¹ Swinburn, B.A., Sacks, G., Hall, K.D., McPherson, K., Finegood, D.T., Moodie, M.L.,

Gortmaker, S.L., 2011. The global obesity pandemic: shaped by global drivers and local environments 378, 804–814. [https://doi.org/10.1016/S0140-6736\(11\)60813-1](https://doi.org/10.1016/S0140-6736(11)60813-1)

¹² von Philipsborn, P., Stratil, J.M., Burns, J., Busert, L.K., Pfadenhauer, L.M., Polus, S., Holzapfel, C., Hauner, H., Rehfues, E., 2019. Environmental interventions to reduce the consumption of sugar-sweetened beverages and their effects on health. *Cochrane database Syst. Rev.* 6.

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- Regulation of school food environments
 - School-based nutrition education

The research focuses on critical questions including:

1. How can USAID work with communities, national governments and private sector stakeholders to enhance consumer demand for safe and nutritious foods in ways that improve the diets of whole households, including women and children?
2. What interventions can improve the affordability of healthy diets?
3. How can the progress and outcomes of demand-focused interventions be measured and evaluated?

To answer these questions, the researchers conducted a desk review of evidence on interventions to increase the demand for healthy diets in the available peer-reviewed and grey literature and facilitated a roundtable discussion for expert input. A complete description of the desk review approach can be found in Annex 1, and a summary of the take-aways from the roundtable discussion can be found in Annex 2.

This report leaned on several relevant conceptual frameworks to guide the selection and organization of evidence on private and public sector interventions to increase demand for healthy diets¹³.

First, the Nutrition-Sensitive Value Chain Framework, developed by the International Fund for Agricultural Development, aims to shift from traditional value chain approaches, to one that focuses on understanding the nutrition needs of consumers by making value chains more nutrition-sensitive.

Second, the NOURISHING Framework, developed by the World Cancer Research Fund International was designed to help policy makers, researchers, and organizations identify and promote key policy interventions required for a “comprehensive policy package” to promote healthy diets¹⁴. It helps researchers identify evidence for policy making, identify research gaps, and monitor and evaluate nutrition policies. More information about the NOURISHING Framework can be found in Annex 3.

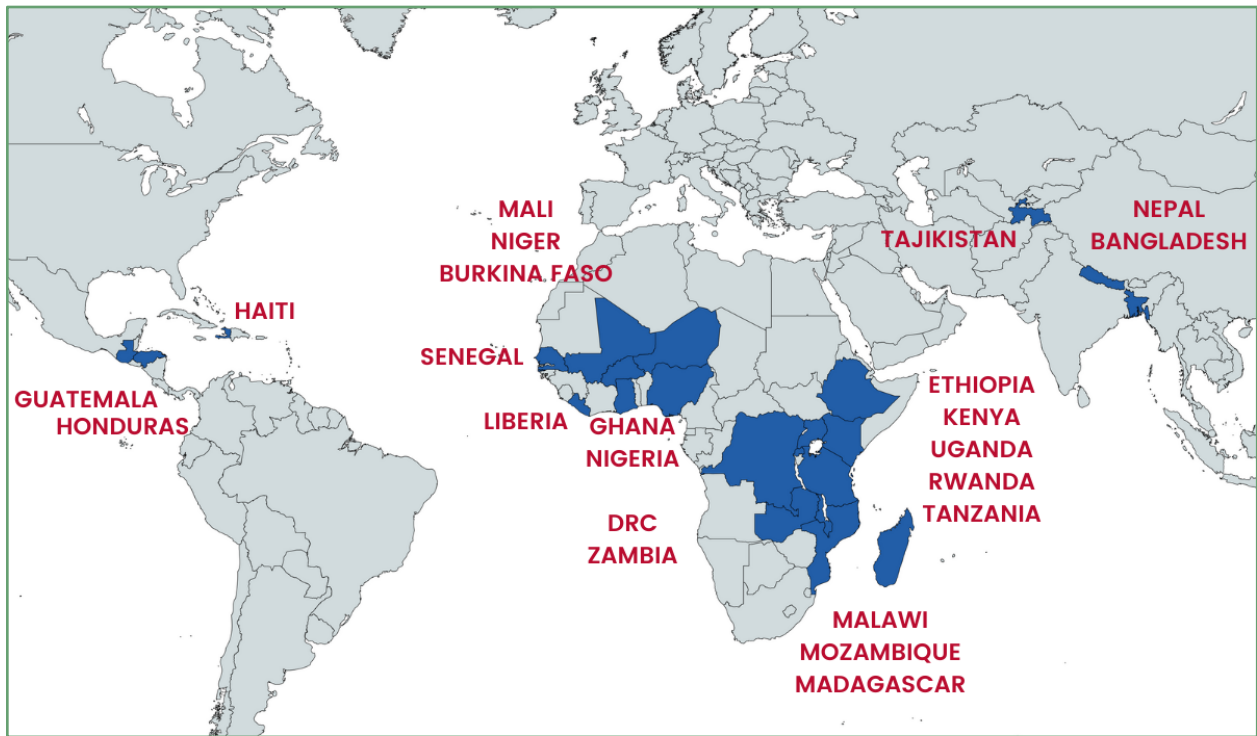
Third, the USAID Bureau for Resilience and Food Security Food Systems Conceptual Framework; and fourth, the High Level Panel of Experts on Food Security and Nutrition Conceptual Framework of Food Systems for Diets and Nutrition.

The research prioritizes evidence from Feed the Future countries, shown in Figure 1, for applicability. The research also identified important gaps in the evidence on demand-side interventions for improved nutrition.

¹³ Hawkes C, Jewell J, Allen K. A food policy package for healthy diets and the prevention of obesity and diet-related non-communicable diseases: the NOURISHING framework. *Obes Rev.* 2013 Nov;14 Suppl 2:159-68. doi: 10.1111/obr.12098. PMID: 24103073.

¹⁴ Hawkes C, Jewell J, Allen K. A food policy package for healthy diets and the prevention of obesity and diet-related non-communicable diseases: the NOURISHING framework. *Obes Rev.* 2013;14 Suppl 2:159–168. doi: 10.1111/obr.12098.

FIGURE I. MAP OF USAID NUTRITION PRIORITY & FEED THE FUTURE COUNTRIES



KEY RESULTS

The creation of an enabling and supportive environment for food and nutrition policies, programs, and interventions is a first step toward transforming food systems. LMICs are implementing evidence-based nutrition actions, both environmental and behavioral in nature, which vary in form, function, and level (population, market, community, household, and school). Generally, the primary goal of nutrition actions is to

address food and nutrition insecurity, diet-related health outcomes, or to help consumers make optimal food choices. The context in which these interventions are implemented is important, including the myriad individual, social, and environmental influences on diets and nutrition. The following sections describe the current evidence on the effectiveness of such policies, programs and interventions across Feed the Future countries.



Population-Level Interventions

Fiscal Policies

Taxation

SUMMARY OF EVIDENCE

Most Feed the Future countries apply national excise taxes on SSBs. While there is strong evidence that SSB taxes reduce purchasing of taxed beverages in other LMICs, very little evaluation evidence exists for Feed the Future countries.

Taxation is a cost-effective tool to reduce consumption of packaged foods high in salt, sugar or fat, with potential for considerable health and economic benefits¹⁵. According to The Global Sugar Sweetened Beverage Tax Database, developed by the World Bank, 132 jurisdictions (countries, regions, or districts) have implemented some type of tax on sugar-sweetened beverages (SSBs) (excise, import, sales, or value-added/goods and services). Of these, all Feed the Future countries, apart from Haiti and Malawi, currently apply national excise taxes on SSBs. Targeted excise taxes are considered the most effective instrument for

health taxes because they can target less healthy products and raise their prices relative to other goods and services. A tax that creates a price differential between SSBs and healthier alternatives can change demand for, and supply of, these products. While there is strong evidence that SSB taxes reduce purchasing of taxed beverages in other LMICs^{16,17} little evidence exists for Feed the Future countries.

Importantly, data is not granular enough to allow for analyses of SSB taxes on specific population subgroups (i.e. urban versus rural, men versus women). Most studies, largely in high-income countries (HICs) provide

¹⁵ Hattersley L, Mandeville KL. Global Coverage and Design of Sugar-Sweetened Beverage Taxes. *JAMA Netw Open*. 2023;6(3):e231412. doi:10.1001/jamanetworkopen.2023.1412

¹⁶ Stacey, N., Edoka, I., Hofman, K., Swart, E. C., Popkin, B., & Ng, S. W. (2021). Changes in beverage purchases following the announcement and implementation of South Africa's Health

Promotion Levy: an observational study. *The Lancet Planetary Health*, 5(4), e200-e208. [https://doi.org/10.1016/S2542-5196\(20\)30304-1](https://doi.org/10.1016/S2542-5196(20)30304-1)

¹⁷ Salgado Hernández, J.C., Ng, S.W. & Colchero, M.A. Changes in sugar-sweetened beverage purchases across the price distribution after the implementation of a tax in Mexico: a before-and-after analysis. *BMC Public Health* 23, 265 (2023).

aggregated results for the general population, with only a small subset of research reporting data for subpopulations, usually by socioeconomic status¹⁸. While taxation is not in

the purview of USAID programming, the World Health Organization recently launched new guidance¹⁹.

Food Subsidies and Transfers

SUMMARY OF EVIDENCE

There is a limited number of studies on food subsidies, making it unclear whether changes are sustainable and whether savings might be used to purchase and consume other less nutritious foods and, therefore, not translate into measurable nutrition benefits.

There is high-quality evidence on the effectiveness of unconditional and conditional cash transfers and in-kind transfers on dietary diversity in women and children across Feed the Future countries. There is also promising evidence on the effectiveness of cash-plus interventions on diets in a few Feed the Future countries.

Food subsidies and transfers (cash or in-kind) can be used to increase the demand for healthy products that are under-consumed, such as fruits and vegetables. From a political economy perspective, food subsidies are often more appealing and, when effectively targeted, can mitigate concerns about the potentially regressive impact of a tax on less nutritious foods²⁰. These subsidies can offer crucial, focused support to low socioeconomic groups, encouraging healthier eating habits. Food subsidies take various forms, such as vouchers or coupons that can be used to purchase healthier foods, or subsidies for the distribution of healthier foods. The effectiveness of programs to promote nutritional outcomes depends on the circumstances under which they are implemented.

Previous reviews have examined the effects of subsidy programs, across eight countries, on

sales, food consumption, and health outcomes^{21,22}. Of these, one program in South Africa implemented by a private health and life insurance company in 2009 provided a 25% discount on nutritious foods to 260,000 households^{23,24}. Compared to those not receiving the subsidy, participants with the rebate were found to have an increase in daily fruit and vegetable consumption by 21%; an increase in the probability of having three or more servings of whole grain foods per day by 40%; and a decrease in the probability of regularly having foods high in sugar by 26%, foods high in salt by 22%, fried foods by 23%, processed meat by 15%, and fast food by 15%. Given the limited number of studies, it is unclear whether changes are sustainable, and whether savings might be used to purchase and consume other less nutritious foods and

¹⁸ Andreyeva T, Marple K, Marinello S, Moore TE, Powell LM. Outcomes Following Taxation of Sugar-Sweetened Beverages: A Systematic Review and Meta-analysis. *JAMA Netw Open*. 2022;5(6): e2215276.

¹⁹ World Health Organization. Fiscal policies to promote healthy diets: WHO guideline. Geneva: World Health Organization; 2024. Licence: CC BY-NC-SA 3.0 IGO.

²⁰ Hammaker, J., Anda, D., Kozakiewicz, T., Bachina, V., Berretta, M., Shisler, S., & Lane, C. (2022). Systematic review on fiscal policy interventions in nutrition. *Frontiers in Nutrition*, 9, 967494.

²¹ Mansilla C, Herrera C.A., von Uexkull E. Food Subsidies to Promote Healthy Eating and Reduce Healthy Food Prices: A Rapid Literature Review. (2023). World Bank: Washington D.C.

²² Alagiyawanna A, Townsend N, Mytton O, Scarborough P, Roberts N, Rayner M. Studying the consumption and health outcomes of fiscal interventions (taxes and subsidies) on food and beverages in countries of different income classifications; a systematic review. *BMC Public Health*. 2015 Sep 14; 15:887.

²³ An, R., Patel, D., Segal, D., & Sturm, R. 2013. "Eating Better for Less: A National Discount Program for Healthy Food Purchases in South Africa." *American Journal of Health Behavior* 37(1), 56–61.

²⁴ An, R., & Sturm, R. 2017. "A Cash-back Rebate Program for Healthy Food Purchases in South Africa: Selection and Program Effects in Self-reported Diet Patterns." *American Journal of Health Behavior*, 41(2), 152–162.

therefore, not translate into measurable benefits.

In addition to subsidies, social safety net programs, as part of the broader social protection agenda, aim to address risks, vulnerability, and social exclusion. Across many LMICs, cash (conditional or unconditional) or in-kind transfers have been implemented, with varying results on diets, including food security, dietary diversity, and anthropometric outcomes. Of relevance to Feed the Future contexts, unconditional cash transfer programs have been implemented in Burkina Faso, Ghana, Kenya, Malawi, Uganda, and Zambia.

A Cochrane review by Duroo and colleagues examined the effect of various transfers on household expenditure on food and dietary diversity. Their results suggest that unconditional cash transfers may increase dietary diversity (low confidence, 12,631 households, 890 children (10 Randomized Controlled Trials [RCTs]), with 5 cluster RCTs (cRCTs) favoring the intervention (from Bangladesh, Burkina Faso, Kenya and Malawi).

In Bangladesh, two studies reported positive effects. One reported an increase in the food consumption score by 6.84 points after two years (95% confidence interval [CI] 4.64 to 9.03) and the other study with an increase of 2.62 points (95% CI 0.58 to 4.66).

In Burkina Faso, the odds of achieving Minimum Dietary Diversity (MDD) were approximately three-fold higher in the children from the intervention group (odds ratio [OR] 2.95, 95%

CI 1.86 to 4.68; $n = 322$; $P < 0.001$) as compared to controls²⁵. In Kenya, the mean increase in the dietary diversity score increased by 0.82 at two years in intervention households (1824 households; $P < 0.01$)²⁶, whereas in Malawi, a study reported an increase in the food diversity composite score by 2.4 points with the intervention compared to the control group (95% CI 1.22 to 3.58; 752 households)²⁷. In addition, five cRCTs in Kenya, Malawi and Zambia reported on the proportion of household expenditure on food, with evidence being very uncertain about the effects of unconditional cash transfers (very low confidence, 11,271 households (5 cRCTs)^{28,29,30,31,32}.

Effects varied across the five studies, with one study showing a clear effect favoring the intervention, two studies showing an unclear effect potentially favoring intervention, and two studies show a clear effect favoring the control.

In comparison, conditional cash transfers provide cash to beneficiaries that participate in designated healthcare activities. While there are pros and cons of this scheme, the evidence indicates that conditional cash transfer programs virtually always augment household food consumption and dietary diversity as well as increase participation in preventive health care³³.

Of relevance to Feed the Future contexts, conditional cash transfer programs have been noted in Honduras, Burkina Faso, Ghana, Malawi, Tanzania, Uganda, and Bangladesh²⁴. Duroo and colleagues noted that conditional

²⁵ Tonguet-Papucci A, Hougbe F, Huybregts L, Ait-Aissa M, Altare C, Kolsteren P, et al. Unconditional seasonal cash transfer increases intake of high-nutritional-value foods in young Burkinabe children: results of 24-hour dietary recall surveys within the Moderate Acute Malnutrition Out(MAM'Out) randomized controlled trial. *The Journal of Nutrition* 2017;147(7):1418-25.

²⁶ Asfaw S, Davis B, Dewbre J, Handa S, Winters P. Cashtransfer programme, productive activities and labour supply: evidence from randomized experiment in Kenya. *Journal of Development Studies* 2014;50(8):1172-96.

²⁷ Miller CM, Tsoka M, Reichert K. The impact of the Social Cash Transfer Scheme on food security in Malawi. *Food Policy* 2011;36(2):230-8.

²⁸ Asfaw S, Davis B, Dewbre J, Handa S, Winters P. Cash transfer programme, productive activities and labour supply: evidence from randomized experiment in Kenya. *Journal of Development Studies* 2014;50(8):1172-96.

²⁹ Brugh K, Angeles G, Mvula P, Tsoka M, Handa S. Impacts of the Malawi social cash transfer program on household food and nutrition security. *Food Policy* 2018; 76:19-32.

³⁰ Hjelm L, Handa S, de Hoop J, Palermo T. Poverty and perceived stress: evidence from two unconditional cash transfer programs in Zambia. *Social Science & Medicine* 2017; 177:110-17.

³¹ Merttens F, Hurrell A, Marzi M, Attah R, Farhat M, Kardan A, et al. Kenya Hunger Safety Net Programme; monitoring and evaluation component: impact evaluation final report: 2009 to 2012. Oxford Policy Management; 2013.

³² Miller CM, Tsoka M, Reichert K. The impact of the Social Cash Transfer Scheme on food security in Malawi. *Food Policy* 2011;36(2):230-8.

³³ Alderman, Harold. 2016. "Leveraging Social Protection Programs for Improved Nutrition: Summary of Evidence Prepared for the Global Forum on Nutrition Sensitive Social Protection Programs, 2015." World Bank, Washington, DC.

cash transfers (moderate confidence, 3937 households [2 RCTs]) and food transfers probably slightly improve dietary diversity (low confidence, 2,459 households [2 RCTs])³⁴.

Other systematic reviews have corroborated findings on social protection schemes,³⁵ including Olney and colleagues that found positive effects on dietary diversity in women (7 of 9 studies, both cash and in-kind transfers), whereas only 7 of 18 studies found increases in dietary diversity in children³⁶.

Additionally, reviews on cash plus programs, which aim to combine cash transfers with other interventions or services (e.g. behavior change communication, psychosocial support, or cross-sectoral linkages) to improve development

outcomes across multiple Sustainable Development Goals (SDGs) have seen positive effects. Little and colleagues noted that while few studies measured and reported on dietary outcomes, as opposed to anthropometric outcomes, programs in Bangladesh, Ethiopia, Kenya, and Niger have noted effectiveness of cash plus program on improving diets³⁷.

Because the effectiveness of programs varies substantially by program type and design features such as targeting households or specific individuals, types of foods provided, and integrated interventions with behavior change communication, these factors, along with other contextual factors, must be considered prior to implementation.

Regulatory Policies

SUMMARY OF EVIDENCE

Regulatory policies such as food-based dietary guidelines, food reformulation policies, and marketing and labeling policies are limited in terms of adoption and implementation across Feed the Future countries. Therefore, there is insufficient evidence on the effectiveness of these measures.

The adoption, strengthening, and enforcement of regulatory policies such as food-based dietary guidelines, marketing and labeling policies, and fortification and reformulation policies can protect, promote, and support healthy diets. Importantly, developing and implementing regulatory frameworks related to food and nutrition often requires the engagement of a broad range of government agencies.

Food-Based Dietary Guidelines

National food-based dietary guidelines provide practical advice on specific food groups, nutrients, and diets tailored to each country

context. These guidelines assist consumers in making nutritious food choices and serve as a foundation for public education, labeling, advertising policies, and food production priorities. Currently, more than 100 countries have developed such guidelines. According to the Food and Agriculture Organization (FAO), of the 23 Feed the Future countries, only nine countries have national dietary guidelines (Bangladesh, Nepal, Kenya, Ghana, Nigeria, Ethiopia, Zambia, Guatemala, and Honduras). However, many of these do not fully align with the WHO's standards of a healthy diet³⁸, and

³⁴ Durao S, Visser ME, Ramokolo V, Oliveira JM, Schmidt BM, Balakrishna Y, Brand A, Kristjansson E, Schoonees A. Community-level interventions for improving access to food in low- and middle-income countries. *Cochrane Database Syst Rev.* 2020 Jul 28;7(7):CD011504.

³⁵ Bastagli, F., Hagen-Zanker, J., Harman, L., Barca, V., Sturge, G., & Schmidt, T. (2019). The impact of cash transfers: a review of the evidence from low-and middle-income countries. *Journal of Social Policy*, 48(3), 569-594.

³⁶ Olney DK, Gelli A, Kumar N, Alderman H, Go A, Raza A. Social assistance programme impacts on women's and children's diets and nutritional status. *Matern Child Nutr.* 2022 Oct;18(4): e13378.

³⁷ Little, Madison T., et al. "Effectiveness of cash-plus programmes on early childhood outcomes compared to cash transfers alone: A systematic review and meta-analysis in low-and middle-income countries." *PLoS Medicine* 18.9 (2021): e1003698

³⁸ <https://www.who.int/news-room/fact-sheets/detail/healthy-diet>

evidence on adherence of population groups to food-based dietary guidelines has been limited.

Marketing Policies

Comprehensive action by governments to reduce the impact of the promotion of non-nutritious foods, particularly to children and adolescents, is required in both physical and digital food environments. Globally, countries are actively implementing food marketing policies on foods high in saturated fats, trans-fatty acids, free sugars, or salt in response to the World Health Assembly Resolution 63.14 drafted in 2010 and recent WHO guideline³⁹. Informing these guidelines, evidence on effectiveness of restricting food marketing policies on exposure, purchasing, and diets has mainly been reported from high-income countries, except for one study in Mexico⁴⁰.

In addition to less nutritious foods, the harmful marketing of breast milk substitutes directly to consumers via digital and traditional forms of media, and indirectly via incentives, free supplies, and promotions to and through health workers and facilities, retailers, and policy makers is a critical issue that undermines breastfeeding practices and public health initiatives aimed at promoting optimal infant nutrition. The International Baby Food Action Network, UNICEF, and WHO continuously monitor the adoption or implementation of regulations against inappropriate marketing of breast milk substitutes. As of March 2024, nine Feed the Future countries (Bangladesh, Burkina Faso, Ethiopia, Ghana, Kenya, Mozambique, Nigeria, Tanzania, and Uganda) have enacted legislation or adopted regulations, decrees, or other legally binding measures encompassing a

significant set of provisions of the International Code of Marketing of Breast Milk Substitutes. In addition to this, seven countries are moderately aligned with the code (Guatemala, Madagascar, Mali, Malawi, Nepal, Tajikistan, and Zambia) and some provisions of the code are included in four countries (Honduras, Niger, Rwanda and Senegal)⁴¹.

Food Labeling Policies

Food labeling policies are implemented to enable consumers to make informed choices regarding the safety and nutrition of their foods. These include mandatory or voluntary front-of-pack labeling (FOPL), traffic lights, warning labels, scores or ratings, and guidelines for daily allowance indicating healthiness of food products. FOPL regulations have spread across LMICs as a cost-effective intervention to provide clear and simple information to the population, quickly indicating when a packaged product is high in nutrients of concern and/or contains food additives that can be harmful to health. FOPL is applicable to packaged food and beverage products that are typically ultra-processed.

It is important to note that there are many FOPL models around the world aimed at complementing the nutritional facts table and list of ingredients to provide information to consumers at a glance. In high-income countries, three reviews assessed the effect of labeling interventions (i.e. traffic light, nutrition labels, menu labels) on SSB or non-alcoholic drink purchases in real-world settings^{42,43,44}.

They found positive effects with traffic light labeling on purchases, but not with nutrition rating score (low to medium certainty of

³⁹ World Health Organization. Policies to protect children from the harmful impact of food marketing: WHO guideline. Geneva: World Health Organization; 2023. Licence: CC BY-NC-SA 3.0 IGO.

⁴⁰ Boyland E, McGale L, Maden M, Hounsome J, Boland A, Jones A. Systematic review of the effect of policies to restrict the marketing of foods and non-alcoholic beverages to which children are exposed. *Obes Rev.* 2022 Aug;23(8): e13447

⁴¹ Marketing of breast-milk substitutes: national implementation of the International Code, status report 2024. Geneva: World Health Organization and the United Nations Children's Fund (UNICEF), 2024. Licence: CC BY-NC-SA 3.0 IGO

⁴² von Philipsborn P, Stratil JM, Burns J, Busert LK, Pfadenhauer LM, Polus S, Holzapfel C, Hauner H, Rehfuss E. Environmental interventions to reduce the consumption of sugar-sweetened

beverages and their effects on health. *Cochrane Database of Systematic Reviews* 2019, Issue 6. Art. No.: CD012292. DOI: 10.1002/14651858.CD012292.pub2.

⁴³ Kelly B, Ng SH, Carrad A, Pettigrew S. The Potential Effectiveness of Front-of-Pack Nutrition Labeling for Improving Population Diets. *Annu Rev Nutr.* 2024 Jun 10. doi: 10.1146/annurev-nutr-011224-030917. Epub ahead of print. PMID: 38857543.Xx

⁴⁴ Crockett RA, King SE, Marteau TM, Prevost AT, Bignardi G, Roberts NW, Stubbs B, Hollands GJ, Jebb SA. Nutritional labeling for healthier food or non-alcoholic drink purchasing and consumption. *Cochrane Database Syst Rev.* 2018 Feb 27;2(2):CD009315

evidence). Currently no Feed the Future country has implemented FOPL; however, two countries have implemented front-of-pack logos (Zambia and Nigeria), and five countries appear to be developing mandatory food labeling policies (Ethiopia, Ghana, Kenya, Tanzania, and Uganda).

In 2020, the government of Zambia created the Good Food Logo, in collaboration with the SUN Business Network and support from the World Food Programme. The Good Food Logo has been used on products that meet a set of nutrition criteria based on international dietary guidelines from WHO⁴⁵. Likewise, in Nigeria, there have been efforts led by the Nigerian Heart Foundation to initiate a voluntary 'Heart Tick' label on pre-packaged foods to identify heart-healthy foods. In both countries there has yet to be formal evaluations of impacts on consumer purchasing or dietary intake.

Food Reformulation Policies

Food reformulation policies can be a means of improving diet quality and reducing diet-related diseases. Most reformulation policies launched thus far are of single nutrient focus (e.g. sodium or trans-fats), which often ignores the complete nutrient profile of food products. According to WHO's global database on the Implementation of Food and Nutrition Action (GIFNA), 45 countries have a policy commitment to reformulate food to reduce the content of fats, sugars and salt, including Guatemala, Honduras, Kenya, Mozambique, Rwanda, Senegal and Tajikistan. Additionally, several countries have mandatory or voluntary reformulation of fats (trans-fats, saturated or total), salt and sugar. Of note, Bangladesh implemented a mandatory reformulation policy for trans-fat in 2022. Evidence on how these political commitments have translated into action is limited.

⁴⁵ Sun Business Network. Zambia Good Food Logo. Available from: <https://sunbusinessnetwork.org/stories/zambias-good-food-logo-a-badge-for-better-nutrition/>





Food Supply & Market-Level Interventions

While there are many actors in the food supply chain, one set of actors that can and should be heavily leveraged is MSMEs. As demand for affordable nutritious food increases and food insecurity rises globally, MSMEs have a growing proportion of the economy and an increasingly critical role in the private sector of LMICs, especially in the food and agricultural industries^{46,47,48}.

For example, in Nigeria, MSMEs make up 99% of the economy and contribute 50% to the nation's GDP, and in Ghana⁴⁹, they make up 90% of the economy and contribute 70% to the GDP. It is estimated that approximately 65% of food consumed in Africa and South Asia is now procured, processed, and sold (wholesale and retail) by MSMEs⁵⁰.

In sub-Saharan Africa, over 85% of fruit and vegetables by volume and about 80% of animal source foods such as meat and dairy are produced by MSMEs⁵¹. In Ethiopia, MSME meat processors are responsible for 95% of meat processing⁵².

In LMICs, MSMEs are highly active in the middle stages of the food supply chain, including food production, procurement, storage, logistics, transportation, trading, and distribution. As such, MSMEs are often referred to as the hidden middle but have been traditionally overlooked by policymakers and governments.

It is important to note that while MSMEs now represent a large portion of the private sector, the vast majority are micro-enterprises, often small and informal, headed by very few personnel, and lacking resources, skills, and infrastructure compared to their larger competitors and counterparts. For example, in Guatemala, MSMEs make up over 99% of the 926,000 registered enterprises in the country, and, of these, 95% are micro-enterprises.

The availability of food products is essential to influence consumer choice and consumption, and thus interventions and innovations focused on MSMEs have the potential to transform food systems and ensure more safe, high-quality, and affordable nutrient-rich products reach all consumers⁵³.

⁴⁶ Agridius Foundation. 2023. *SMEs in Food Systems: A Framework for Engagement, Guatemala Country Study*.

⁴⁷ Vos, R and Cattaneo, A. 2021. Poverty reduction through the development of inclusive food value chains. *Journal of Integrative Agriculture* 20(4): 964-978.

⁴⁸ Maredia, M. K., Porter, M., Nakasone, E., Ortega, D. L., & Caputo, V. (2024). Does increasing the availability of a nutritious food produced by a small- and medium-sized enterprise increase its consumption? Evidence from a field experiment in Kenya. *Applied Economic Perspectives and Policy*, 46(2), 414-434.

⁴⁹ ACCION. Strategies to Optimize MSME-centered supply chain finance solutions. *A case study of Ghana, Ethiopia and Nigeria*. 2023.

⁵⁰ Reardon, T., Liverpool-Tasie, L. S. O., & Minten, B. (2021). Quiet Revolution by SMEs in the midstream of value chains in

developing regions: wholesale markets, wholesalers, logistics, and processing. *Food Security*, 13(6), 1577-1594.

⁵¹ Herrero M., Thornton P.K., Power B., Bogard J.R., Remans R., Fritz S., Gerber J.S., Nelson G., See L., Waha K., Watson R.A., West P.C., Samberg L.H., van de Steeg J., Stephenson E., van Wijk M., Havlik P. Farming and the geography of nutrient production for human use: A transdisciplinary analysis. *The Lancet. Planetary Health*. 2017;1(1): e33–e42.

⁵² Soethoudt, J. M., Riet, J. van de, Sertse, Y. & Groot, J. J. (2013). Business Opportunities: Food Processing in Ethiopia. Wageningen UR – Food & Biobased Research.

⁵³ Grude, A., Eckert, E., Otieno, J., Mulaisho, A., Kariuki, L., & McCurdy, C. (2024). USAID Learning Brief: Partnering with Food Processors to Tackle Sourcing Challenges and Strengthen Farmers' Livelihoods. Washington, D.C.

Financial Support & Incentives for MSMEs

SUMMARY OF EVIDENCE

There is growing evidence that certain business models such as cooperatives and public-private partnerships, especially MSMEs that target low-income consumers, can support nutrition-related actions and initiatives. They can increase market access for smallholders, enhance processing and distribution networks, and provide investment for product and technological development and innovation, thereby making MSMEs more productive and efficient.

One of the most reported barriers by MSMEs is financial capital⁵⁴. MSMEs tend to lack formalized land titles and tenure or other assets that can be used as collateral for loans from formal lending institutions like banks. MSMEs also tend to have weak administrative, organizational, and logistical capacities and staffing issues that make formal investors unwilling to take on such high risks (e.g. climate change and economic shocks). And many smallholder farmers and other micro-enterprises live in poverty, so the capacity to financially input back into their own businesses and farms and/or repay high interest loans is severely limited^{55,56,57}.

Cooperatives are a business model that can mitigate some of these challenges. Cooperatives increase food productivity through better market access and greater distribution capacity, for example by reducing transportation costs as members can share transport access to multiple markets. Cooperatives also allow the group to have better negotiation power with other players in the value chain and make MSMEs more attractive to formal financial providers.

Members can pool resources, and access formal credit more easily, which can then be invested to ensure their products are processed

efficiently and safely reach the consumer at lower prices⁵⁸.

For example, Copiasuro S.L. is a successful farmer-owned cooperative of beekeepers in San Marcos, Guatemala that aggregates, processes, and markets locally produced natural, certified-organic honey. Working together allowed them to negotiate and access price premiums they otherwise could not get, and share knowledge, practices, and skills training.

A study by Maredia et al. investigated several approaches to supporting MSMEs, one of which included an impact accelerator that provided financial assistance and technical expertise to food-producing SMEs in Kenya, through a project called the Marketplace for Nutritious Foods (MNF). The technical assistance aimed to improve MSMEs' management practices, production capacities, food safety practices, and marketing strategies to make production more efficient and to better target consumer markets while grants were given to finance equipment, infrastructure, and other operational costs. The idea was that these efforts would increase the availability, affordability, and desirability of nutrient-rich foods sold in markets. The study findings showed that the impact accelerator was successful at helping MSMEs launch new

⁵⁴ Nordhagen S, Igbeka U, Rowlands H, Shine RS, Heneghan E, Tench J. COVID-19 and small enterprises in the food supply chain: Early impacts and implications for longer-term food system resilience in low- and middle-income countries. *World Dev.* 2021 May; 141:105405.


⁵⁵ Danse, M., Klerkx, L., Reintjes, J., Rabbinge, R., & Leeuwis, C. (2020). Unravelling inclusive business models for achieving food and nutrition security in BOP markets. *Global Food Security*, 24, 100354.

⁵⁶ Henson S, Agnew J. (2021). "Are market-based solutions a viable strategy for addressing micronutrient deficiency? Lessons

from case studies in sub-Saharan Africa and South Asia." *Development Policy Review* 39.

⁵⁷ Gillespie S, Haddad L, Mannar V, Menon P, Nisbett N; Maternal and Child Nutrition Study Group. The politics of reducing malnutrition: building commitment and accelerating progress. *Lancet.* 2013 Aug 10;382(9891):552-69.

⁵⁸ Aseto, J.O.; Anggraeni, K.; Melgar, M.I.M.; Ballón-Ossio, A.; Sander, L.E.; Grossi, F.; Ojwang, W.; Gathogo, E.; Njiru, C.; Orwa, N. Promotion and Uptake of Sustainable Consumption and Production (SCP) Practices among Kenyan MSMEs: Key Learnings. *Sustainability* 2022, 14, 3207.



products into the consumer market, and that MSMEs overall found the grants very helpful in investing in infrastructure and product development⁵⁹. The technical assistance was also crucial in improving their knowledge, awareness, and skill sets in running their businesses^{60,61}.

However, it is important to highlight that the study's impact on consumer consumption and diet quality was limited. Although the intervention introduced a safe, nutritious product into low-income markets, it did not significantly shift the market supply or demand for peanut butter. Peanut butter purchases did not increase and the consumption of other related products such as other nut butters and spreads like jam or margarine was unchanged. The authors suggest that the introduction of one or few nutritious products into the markets is not enough to affect diet quality as is needed.

To achieve an actual change in diet quality and consumption will require a multifaceted approach of policies, programs, and interventions targeting different types of foods that contribute to consumers' context-specific food baskets⁶².

Other key challenges faced by MSMEs are infrastructure such as roads, electricity, and water management; limited land or land tenure issues; and access to expertise and training, information and communications, and innovative technology that can add value to their productivity. Addressing these basic infrastructure needs can have a major impact on increasing productivity, minimizing food waste and/or loss during postharvest and processing. The result can be that greater volumes of

healthy and safe nutritious food are more accessible and affordable at the consumer level.

One example of an innovative intervention that addresses some of these key challenges is implemented by Tanga Fresh Ltd. In Tanzania. Tanga Fresh Ltd. Operates and coordinates a dairy value chain of milk collection, processing, and marketing. They not only provided cattle to farmers and financial credit to build and expand their productivity, but also created innovative hubs called Milk Collection Centers. These centers serve as an efficient one-stop-shop where farmers can access information and training, animal feed, and medicine. This ensures farmers have the knowledge and resources they need to be as profitable and productive as possible.

Access to markets and distribution networks is another key area of opportunity for intervention and innovation. This can be achieved by leveraging partnerships with existing companies, for profit and non-profit organizations that either have access to the local and international markets already, and/or have more resources to build more efficient and thus less costly distribution.

For example, ASFRASA is a Guatemalan organization that takes unprocessed beans grown locally in smallholder farms and imported grains (e.g. lentils, rice, oats), and processes and packages these crops for wholesale in the local market. This business model is an example of stable and guaranteed sourcing partnerships that not only links farmers to the market but also provides them with better and more competitive pricing and more stable offtakes. This model removes the middle stages of processing, packaging, distributing, and

⁵⁹ Maredia MK, Nakasone E, Porter M, Nordhagen S, Caputo V, Djimeu EW, Jones AD, Mbuya MN, Ortega DL, Toure D, Tschirley D. Using Novel Multimethod Evaluation Approaches to Understand Complex Food System Interventions: Insights from a Supply Chain Intervention Intended to Improve Nutrition. *Curr Dev Nutr.* 2024 May 25;8(6):103776.

⁶⁰ Neufeld LM, Nordhagen S, Leroy JL, Aberman NL, Barnett I, Djimeu Wouabe E, Webb Girard A, Gonzalez W, Levin CE, Mbuya MN, Nakasone E, Nyhus Dhillon C, Prescott D, Smith M, Tschirley D. Food Systems Interventions for Nutrition: Lessons from 6 Program Evaluations in Africa and South Asia. *J Nutr.* 2024 Jun;154(6):1727-1738

⁶¹ Maredia MK, Nakasone E, Porter M, Nordhagen S, Caputo V, Djimeu EW, Jones AD, Mbuya MN, Ortega DL, Toure D, Tschirley D. Using Novel Multimethod Evaluation Approaches to Understand Complex Food System Interventions: Insights from a Supply Chain Intervention Intended to Improve Nutrition. *Curr Dev Nutr.* 2024 May 25;8(6):103776.

⁶² Maredia MK, Nakasone E, Porter M, Nordhagen S, Caputo V, Djimeu EW, Jones AD, Mbuya MN, Ortega DL, Toure D, Tschirley D. Using Novel Multimethod Evaluation Approaches to Understand Complex Food System Interventions: Insights from a Supply Chain Intervention Intended to Improve Nutrition. *Curr Dev Nutr.* 2024 May 25;8(6):103776.

marketing, which can be costly and logistically prohibitive for many smallholder farmers.

Another example is Dadtco, a social enterprise in Nigeria that partnered with the International Fertilizer Development Center and the Dutch Ministry of Foreign Affairs to purchase semi-processed cassava products from smallholder farmers and sell them in local and international markets. This enterprise provides the equipment and training for these farmers to process their raw cassava crop into a semi-processed form that is not only more marketable but also yields higher margins.

This example highlights the value and demand for innovation in value chains to help MSMEs be more profitable. Unfortunately, innovation like this typically requires financial capital and human resources that mostly only larger partners, companies, or organizations can afford.

This type of partnership and business model can also work on a large scale. Sylva Food Solutions is a highly successful organization in Zambia that has partnered with more than 25,000 smallholders that locally produce and process traditional food in response to the growing presence of Western-style foods in the country and as a support to local farmers. They have created a guaranteed market for these smallholder farmers and have connected them to players in the private sector, supply chain, and government, while also providing secure financial resources for the farmers to continue growing locally produced, traditional food that is accessible to all consumers in the country⁶³.

Another type of partnership that may help MSMEs transform food systems and address growing food insecurity is public-private partnerships (PPP). MSMEs are the businesses that best target the base of the pyramid (BOP), or the lowest-income consumers, a massive market global and multinational companies seek to access. Although there is concern about the right motives for the private sector entering the public space of health and nutrition, PPP can

mitigate the challenges that MSMEs face in the dynamic food supply chain while also achieving their goals and objectives of increasing their markets. As such, there is an increasing push for greater engagement and responsibility of the private sector in nutrition-related actions and initiatives⁶⁴.

The private sector can help transform value chains by ensuring sourcing schemes with local producers and traders and can act as a guaranteed retailer and/or enhance distribution and market access for MSMEs. They can also help with promoting product and/or technological innovation that expands existing nutritious food products for consumers.

The SUN Business Network (SBN) is a global private sector platform that supports MSMEs in LMICs, assessing their needs, identifying areas of support (e.g. technical, financial, and other support services), and advocating for an enabling environment in their respective countries. SBN works in multiple countries in Asia and Africa, including Zambia, Kenya, Nigeria, and Bangladesh. They help broker partnerships and collaborations between the private and public sectors, governments, and other actors in the food supply chain to increase the accessibility of nutritious food for consumers. SBN is a network of stakeholders that have the resources to invest in MSMEs and the food system.


Partnerships with and investments from the private sector can also help vertically integrate smallholder producers and MSMEs into national or global supply chains, unlocking access to resources and markets.

With investment from the International Finance Corporation, Pearl Dairy, the second largest milk processor in Uganda, has expanded its network of milk collection centers and suppliers, especially in rural remote areas, and improved its processing and cold storage infrastructure. As a result, milk production, safety and quality, have increased as the local

⁶³ Global Alliance for the Future of Food. Mobilizing Money & Movements: Creative Finance for Food Systems Transformation. n.p.: Global Alliance for the Future of Food, 2022.

⁶⁴ Hoddinott, John and Gillespie, Stuart and Yosef, Sivan, Public-Private Partnerships and the Reduction of Undernutrition in

Developing Countries (December 9, 2015). IFPRI Discussion Paper 1487, Available at SSRN: <https://ssrn.com/abstract=2741274> or <http://dx.doi.org/10.2139/ssrn.2741274>



consumption of the product within remote rural communities increased⁶⁵.

In Bangladesh, local coastal fishing communities are supported by an FAO/UNDP project that developed and disseminated low-cost solar technology to dry fish. This innovative solar fish dryer not only ensured quality and consistency in the product, but also reduced postharvest losses through improved handling and better food safety⁶⁶.

PPP can also be impactful by co-creating new nutritious food products with local players in the value chain like biofortified and/or reformulated food products. For example, Shokti+ is a biofortified probiotic yogurt produced and distributed in Bangladesh in a partnership between Grameen Bank, Danone, local dairy farmers, and other value chain players that provide the micronutrients, packaging, transportation, and marketing services. This yogurt was formulated to provide essential micronutrients that are missing in the diets of undernourished children in Bangladesh. Not only is the product biofortified to provide a more nutrient-rich option for consumers, but it also provides opportunities for farmers and formal employment for rural women who

distribute the product to local and harder-to-reach communities. To keep affordability reasonable amid rising production costs, the product was reformulated to be shelf-stable at an ambient temperature, negating the need for chilled distribution and storage. As well, this reformulated product uses lower-cost packaging that helps to keep prices low, allowing lower-income consumers to afford and consume nutrient-rich and healthier products. This type of innovation and reformulation was possible due to the resources from the private sector in partnership with the local players.

In Tanzania, Rijk Zwaan, a Dutch multinational vegetable breeder, has made long-term investments in developing and marketing context-appropriate varieties of vegetables. The company created a breeding station in Arusha for local hybrid varieties (e.g. African eggplant, African kale, Chinese pepper) that would enable small-scale local farmers to grow and sell these varieties and be inserted into the dynamic food supply chain. Development and advisory specialists work closely with farmers to provide advice and training, and the company can sell this produce through their network of distributors and markets.

⁶⁵ PATH et al. (2019) Where Business and Nutrition Meet: Review of approaches and evidence on private sector engagement in nutrition. MQSUN+ Report. Available from: https://mqsunplus.path.org/wp-content/uploads/2018/09/MQSUN_Report-Where-Business-and-Nutrition-Meet_15June2018_FINAL.pdf

⁶⁶ Food and Agriculture Organization. Policies and strategies for the development of small and medium-scale food processing enterprises in Bangladesh." Policy measures for micro, small and medium food processing enterprises in the Asian region (2014): 8. Available from: <https://openknowledge.fao.org/server/api/core/bitstreams/7c24d841-c82c-48ea-907e-3615af3fa135/content>

SUMMARY OF EVIDENCE

There is limited but promising evidence that interventions and programs to minimize food loss and waste in MSMEs and the postharvest/processing stages of the food supply chain (e.g. packaging interventions, distribution and transportation innovations) can positively impact accessibility and availability of safe and healthy nutritious food at the market and consumer levels.

Food loss and waste is a commonly cited barrier for MSMEs, especially in the postharvest processing stages. In sub-Saharan Africa, food loss and waste can be up to 50% of total production especially in the sectors for fresh produce and fish, which are predominantly produced by MSMEs^{67,68}. Marketing and distribution costs account for about 50-70%⁶⁹ of the end-product price, which can be quite prohibitive for smaller enterprises and individual farmers.

Part of these costs are due to the distance the nutrient-rich foods need to travel to where poorer populations live, typically further away from urban centers with more infrastructure. This also makes it challenging for perishable products that have specific storage needs or transport requirements to maintain quality and freshness, such as fruits and vegetables, grains, dairy and meat, which also raises concerns about food safety. Addressing these gaps can ensure that food loss is minimized, MSMEs are better compensated and more profitable for their crop yields (i.e. reduced production costs), and food safety is upheld. These in turn will lend

to greater volumes of safe, nutritious food entering the markets, and reduced prices and greater affordability for consumers. As well, strong evidence shows that consumer perceptions of better food safety and quality influence their purchasing and consumption practices of these products such that concerns over food safety will push consumers to still purchase processed and packaged foods over fresh foods, negatively impacting diets^{70,71,72}. For example, the use of hermetic storage bags in Kenya for maize and beans has been effective in preventing spoilage, crop waste, and managing insect pests⁷³.

In contrast, with the increasing demand and unaffordability of fresh fruit and vegetables in Ethiopia, there is a push to increase the availability of crates to ensure fresh produce remains intact during transport for sale at the consumer end⁷⁴. Similarly, in Nigeria a study by Plaisier and colleagues looked at the efficacy of different packaging (from raffia baskets to plastic crates) to reduce postharvest loss of tomatoes⁷⁵. The findings showed that crates outperformed baskets in both regions where

⁶⁷ Affognon, H., Mutungi, C., Sanginga, P. & Borgemeister, C. 2015. Unpacking postharvest losses in sub-Saharan Africa: a meta-analysis. *World Development*, 66: 49–68.

⁶⁸ FAO. 2011. Global food losses and food waste. Extent, causes and prevention. Rome. <https://www.fao.org/3/i2697e/i2697e.pdf>

⁶⁹ Henson S, Agnew J. (2021). "Are market-based solutions a viable strategy for addressing micronutrient deficiency? Lessons from case studies in sub-Saharan Africa and South Asia." *Development Policy Review* 39

⁷⁰ Amfo, Bismark, Isaac Gershon Kodwo Ansah, and Samuel A. Donkoh. "The effects of income and food safety perception on vegetable expenditure in the Tamale Metropolis, Ghana." *Journal of agribusiness in developing and emerging economies* 9.3 (2019): 276-293.


⁷¹ Bukachi, Salome A., et al. "Consumer perceptions of food safety in animal source foods choice and consumption in Nairobi's informal settlements." *BMC nutrition* 7 (2021): 1-15.

⁷² Liguori, Julia, et al. "How do food safety concerns affect consumer behaviors and diets in low-and middle-income countries? A systematic review." *Global Food Security* 32 (2022): 100606.

⁷³ Baributsa D, Njoroge AW. The use and profitability of hermetic technologies for grain storage among smallholder farmers in eastern Kenya. *J Stored Prod Res.* 2020 May; 87:101618.

⁷⁴ Mekonnen, D. A., Galema, S., Nguyen, T., and Berkhout, E. D. (2023). Characteristics of fruit and vegetable MSMEs in Ethiopia: case of Addis Ababa and Ziway/Batu. International Food Policy Research Institute. Washington, D.C., U.S.A.

⁷⁵ Plaisier C, Sibomana M, Van der Waal J, Clercx L, Van Wagenberg CPA, Dijkshoorn Y. Approach for Designing Context-Specific, Locally Owned Interventions to Reduce Postharvest Losses: Case Study on Tomato Value Chains in Nigeria. *Sustainability*. 2019; 11(1):247.



the project was piloted. The loss in best quality A-grade tomatoes was about 16-20% lower with crates than with baskets. This pilot intervention was designed to be context-specific and owned by the local value chain actors. This bottom-up approach not only considered the contextual but also the cultural factors to find areas in the value chain that can be addressed to improve food productivity and minimize food loss.

In Zambia, Sylva Food Solutions noticed that although many of their smallholder farmer partners produced high-quality nutritious food with every harvest, they remained poor and hardly profitable because they only sold their crops in their raw form, at the lowest cost of the value chain. Sylva Food Solutions decided to provide a dual-purpose packaging and processing factory that allows farmers to bring their raw product and package it into a value-added product. The farmers can then sell their products at a premium price with the company taking a small cut.

Similarly, in Guatemala, Nelixia sources cardamom and other spices from smallholder farmers and processes the spices into essential oils, extracts, and formulations for cooking and tea. The sale of these semi- and fully processed products provides farmers with a more stable source of income from the raw materials than the raw crops themselves. Additionally, some processed foods are more shelf stable, addressing the issues of food loss, food safety, and difficulties in transport and storage⁷⁶.

Packaging interventions can also be implemented creatively at the retail level. A study by Even et al. (2024) implemented several innovations that were co-created and selected for implementation by local vendors with the aim of improving customer purchasing at informal and formal vendor stalls⁷⁷. One of these interventions was to create and promote

nutrient-rich mixed product packages that offer customers a pack of a variety of fruits and vegetables at an affordable bundled price. These packs also came with information about the benefits of eating fresh fruit and vegetables and how to prepare them. The aim of this pack was to introduce a new product while also providing a convenient nutrient-rich option. The study findings were promising and showed a positive impact on the consumers' self-reported consumption of fruits and vegetables.

In Kenya, milk is widely consumed across all income groups with many competitors in the formal and informal markets. Tarakwo Dairies produces pasteurized milk and distributes directly to consumers through their network of milk automated dispensing units (called milk ATMs). At these milk ATMs, the consumer chooses the volume of milk they wish to purchase, pays with cash, and places their own receptacle to collect the vended milk. This allows the enterprise to avoid using suppliers for packaging, reducing production costs.

This not only keeps the price of milk affordable for the BOP market but also allows consumers to spend only as much as they can on their chosen volume of milk⁷⁸. This flexibility in quantity of product and type of packaging, as opposed to set volumes at a set price, ensures the product is never too cost-prohibitive to consumers. As well, the fact that the milk is pasteurized adds value to the product, despite adding 10% to the price.

Although FreshMilk finds itself competing with unpasteurized milk vendors, they market their product through direct communication with consumers to promote the value of pasteurization in terms of food safety and quality. This is certainly an area of opportunity that can be leveraged, context-specific, in other settings.

⁷⁶ FAO. 2019. The State of Food and Agriculture 2019. [Moving forward on food loss and waste reduction. Rome](#). Licence: CC BY-NC-SA 3.0 IGO.

⁷⁷ Even, B., Crawford, S., Shittu, O. F., Lundy, M., Wertheim-Heck, S., Samuel, F. O., Talsma, E. F., Pastori, G., Thi Le, H., Hernandez, R., Brouwer, I. D., & Béné, C. (2024). From Streets to Tables:

Bottom-Up Co-creation Case Studies for Healthier Food Environments in Vietnam and Nigeria. *Current Developments in Nutrition*, 8(8), 104395

⁷⁸ Global Alliance for Improved Nutrition (GAIN). Affordable Milk. For all. 2019

SUMMARY OF EVIDENCE

There is limited evidence to suggest that food safety improvements and interventions in MSMEs positively impact consumer purchasing behavior of nutritious foods.

Food safety is an important tenet of food supply and can have direct impact on consumer choice and consumption. Concerns about food safety may make certain nutritious food products less desirable, such as fresh produce and meat, which are highly perishable products at risk for spoilage and food borne diseases if not stored, handled, and prepared properly. Traditional and informal markets especially are areas of concern as about 50-60% of food borne diseases in LMICs are attributed to foods from the informal sector^{79,80}. However, they are also an area of opportunity to educate vendors and consumers and ensure best safety practices to promote greater purchasing and consumption of healthy nutrient-rich options.

The Feed the Future Business Drivers for Food Safety (BD4FS) program was implemented in Senegal in 2020, Nepal in 2021, and Ethiopia in 2022⁸¹. The program targeted growing MSMEs involved in the handling, processing, transporting, and storage of perishable, nutrient-dense food. The selected businesses worked with food safety experts and trainers from BD4FS to identify relevant and affordable practices and technologies that could create a return on investment.

As an incentive, BD4FS assisted MSMEs with their marketing activities such as digital messaging on food safety, best practices for consumers, media outreach, and engagement with financial service institutions, to name a few. Overall, this program supported more than 6,000 businesses across Senegal, Nepal, and

Ethiopia, and trained more than 20,000 business owners and operators through hundreds of food safety training sessions. The impact on food sales for these MSMEs was strong with an increase of 12% in sales across all participating businesses.

BD4FS also created a validation program called SME-Pre-HACCP that rewarded businesses for use of food safety management systems. Fifty businesses enrolled, and the program had a 74% success rate, awarding badges to 38 MSMEs. This type of validation or certification program can help small businesses by adding value to their products, expanding their marketability, market and trade opportunities, and even increasing desirability among consumers looking for certified safe products.

In a similar way, governments should create better market incentives and food standard and quality regulations. For example, quality certification programs can help consumers make better informed, safer food choices. They also help MSMEs set themselves apart from others, increasing their competitiveness in local markets.

For example, through Copisauro S.L., the farmer-owned cooperative in Guatemala that makes organic honey, farmers can access price premiums because of the official organic certification they maintain through a rigorous set of practices and standards. This ensures the product for consumers is not only safe, but also adds value to the cooperative's product.

⁷⁹ Henson S, Jaffee S, Wang S. [New Directions: For tackling food safety risks in the informal sector of developing countries](#). Nairobi, Kenya: International Livestock Research Institute; 2023.

⁸⁰ Global Alliance for Improved Nutrition. 2023. Food Safety, Traditional Markets, and Consumer Demand: A Synthesis of

EatSafe's Formative Research Across Low- and Middle-Income Countries. A USAID EatSafe Project Report.

⁸¹ USAID. [Feed the Future Business Drivers for Food Safety. 2021](#).

Technology & Digitization

SUMMARY OF EVIDENCE

There is an evidence gap in the use of ICT in Feed the Future countries, specifically how technology and digitization can improve dietary intake at the consumer level. The limited evidence that does exist suggests expanding ICT for MSMEs to improve their productivity of nutritious food production.

A strong recommendation in the literature is creating an enabling environment for MSMEs through improved access to ICT and digitization. ICT has the potential to positively disrupt the food supply by making it more productive, cost efficient, transparent, and agile. It can also minimize the distance and improve communication and facilitate business and trade between isolated farmers and MSMEs with

other players in the chain. The use of mobile phones and digital services to provide information is one of the first ways the food supply utilized digitization^{82,83}.

Over recent years, there has been a rapid increase in the number of financial services and mobile lenders, e-commerce, and digital platforms. However, there is a gap in evidence on ICT in Feed the Future countries.

⁸² Mekonnen, Daniel A., Emma Termeer, Katrine Soma, Siemen van Berkum and Bart de Steenhuijsen Piters, 2022. How to engage informal midstream agribusiness in enhancing food system outcomes: What we know and what we need to know better. Wageningen, Wageningen Economic Research, Working Paper 2022-034.

⁸³ Inter-American Development Bank. Landscaping the agritech ecosystem for smallholder farmers in Latin America and the Caribbean. 2021. Available from: <https://publications.iadb.org/en/landscaping-agritech-ecosystem-smallholder-farmers-latin-america-and-caribbean>



Community & Household-Level Interventions

Social & Behavior Change

SUMMARY OF EVIDENCE

There is limited but promising evidence on improving dietary intake and consumption practices through social and behavior interventions in Feed the Future countries. SBC interventions combined with other strategies (e.g. social support systems) are more effective in impacting dietary behavior and health outcomes than SBC interventions alone.

A large majority of community-level interventions in the literature utilize social and behavior change (SBC), which aims to increase nutrition knowledge and awareness. Although not all encompassing and up to date, SBC interventions have been categorized by the NOURISHING Framework as: “awareness raising interventions that inform people about food and nutrition through public awareness; counseling interventions that provide nutrition advice and counseling; and skill-building interventions that provide education and skills like cooking and health literacy.”⁸⁴

Of the several reviews from the literature assessing behavior change interventions to improve maternal and child nutrition, the most common intervention was education^{85,86,87,88,89,90}.

Some found that counseling interventions were the most impactful on infant and child outcomes. While most reviews found that the

interpersonal communication components were the most impactful in influencing dietary outcomes, study designs should consider multicomponent SBC interventions (e.g. nutrition education plus social support systems) as they can be more effective and a more holistic approach than single component (e.g. nutrition education only).

A review by Webb Girard et al., found that the interventions that had an effectiveness ratio of >0.8 were ones that included components that addressed structural and social barriers as well, such as social support and adding objects to the environment (e.g. food, agricultural inputs, supplements). A multi-component SBC intervention by Dozio and colleagues, showed that the integration of a psychosocial service (child-care services and psychological support), with social support (food voucher) and skill-building components (information and cooking demonstration) had strong improvements in

⁸⁴ Hawkes C, Jewell J, Allen K. A food policy package for healthy diets and the prevention of obesity and diet-related non-communicable diseases: the NOURISHING framework. *Obes Rev.* 2013 Nov;14 Suppl 2:159-68.

⁸⁵ Webb Girard A, Waugh E, Sawyer S, Golding L, Ramakrishnan U. A scoping review of social behaviour change techniques applied in complementary feeding interventions. *Matern Child Nutr.* 2020 Jan;16(1): e12882. doi: 10.1111/mcn.12882. Epub 2019 Sep 9.


⁸⁶ Litvin, K., Grandner, G. W., Phillips, E., Sherburne, L., Craig, H. C., Phan, K. A., Patel, A. N., & Dickin, K. L. (2024). How Do Social and Behavioral Change Interventions Respond to Social Norms to Improve Womens Diets in Low- and Middle-Income Countries? A Scoping Review. *Current Developments in Nutrition*, 8(6).

⁸⁷ Graziose MM, Downs SM, O'Brien Q, Fanzo J. Systematic review of the design, implementation and effectiveness of mass media and nutrition education interventions for infant and young child feeding. *Public Health Nutr.* 2018 Feb;21(2):273-287.

⁸⁸ Kachwaha, Shivani; Kim, Sunny S.; Das, Jai K.; Rasheed, Sabrina; Gavaravarapu, SubbaRao M.; Rana, Pooja Pandey; and Menon, Purnima. Behavior change interventions to address unhealthy food consumption: A scoping review. *Current Developments in Nutrition* 8(3): 102104.

⁸⁹ Mayén AL, de Mestral C, Zamora G, Paccaud F, Marques-Vidal P, Bovet P, Stringhini S. Interventions promoting healthy eating as a tool for reducing social inequalities in diet in low- and middle-income countries: a systematic review. *Int J Equity Health.* 2016 Dec 22;15(1):205. doi: 10.1186/s12939-016-0489-3.

⁹⁰ Watson D, Mushamiri P, Beerli P, Rouamba T, Jenner S, Proebstl S, Kehoe SH, Ward KA, Barker M, Lawrence W; INPreP Study Group. Behaviour change interventions improve maternal and child nutrition in sub-Saharan Africa: A systematic review. *PLOS Glob Public Health.* 2023 Mar 30;3(3): e0000401.



household food security and psychological well-being of the caregivers⁹¹. This evidence might suggest that while communication interventions are still a strong approach, combining them with other intervention components in a broader SBC intervention might be more effective.

A review by Litvin et al., looked at interventions that aimed to shift norms to improve women's diets in LMICs. Intervention types included but were not limited to home visits and support groups to engage other family members with influence on food choice and diets in the households (e.g. mothers-in-law, male partners). The findings suggested a norm shifting approach in the design and implementation of interventions to improve diets is promising though the evidence is still limited. Norms can influence dietary practices and nutritional outcomes as it impacts access to food and resources, purchasing, and consumption practices. Cultural and social norms within the household also affect how family food resources are allocated and utilized. This might be a future area of research and focus.

For example, in Bangladesh, the Bhalo Khabo Bhalo Thakbo ("Eat Well, Live Well") campaign was a multi-phased SBC campaign that ran from 2019 to 2021, largely social media-based, and directly targeted adolescents, MSMEs and vendors⁹².

The first phase of the campaign was communication interventions with the aim to increase knowledge, attitudes, and awareness among youth about the importance and long-term life impact of better food choices. The second phase was an online pledge for adolescents to openly commit to choosing more nutritious foods as a long-term goal. The third phase was a combination of online and offline activities to support adolescents who

signed the pledge and to create a social movement to push the industry to change.

There are several strengths of this campaign that may be replicable in other settings. First, it combined a communications intervention with other activities to not only educate but also to motivate the individual and mobilize a collective action among the youth. Through their actions on social media, the youth raised public awareness about the lack of nutritious food choices available and demanded that their food environments be improved.

This campaign also utilized a peer-to-peer model, having adolescents find their agency and create an engaging narrative to bring greater awareness and motivate their peers to also make better food choices. Lastly, this campaign showed promising success in using technology such as social media as an effective means to target younger populations and to have greater presence and reach in the public sphere. This channel was especially helpful during the COVID-19 pandemic, when in-person contact was limited, and internet usage increased dramatically. The one limitation was its limited reach to younger adolescents. This is mostly due to their decreased exposure to the internet, social media, and other channels compared to their older counterparts. Therefore, online delivery systems may work well for older youth, but other settings and platforms such as schools may be more appropriate for younger audiences.

Another example is the Alive & Thrive initiative that has been implemented in Bangladesh, Ethiopia, and Vietnam⁹³. These programs implement a broad range of SBC interventions that combine social components with communications activities to improve dietary and care practices of infants and children. The initiative combines interpersonal communication (IPC) delivered at home or

⁹¹ Dozio E, Peyre L, Oliveau Morel S, Bizouerne C. Integrated psychosocial and food security approach in an emergency context: Central African Republic. *Intervention*. 2016; 14:257–71

⁹² Kumar Deo, Ashish; Djimeu Wouabe, Eric; Gonzalez, Wendy; Chowdhury, Detepriya; Barnett, Inka; Bipul, Moniruzzaman; et al. (2021). Improving Adolescents' Food Choices: Learnings from the Bhalo Khabo Bhalo Thakbo ("Eat Well, Live Well") Campaign in Bangladesh. the Institute of Development Studies and partner

organisations. Journal contribution.
<https://hdl.handle.net/20.500.12413/16949>

⁹³ Kim SS, Nguyen PH, Tran LM, Alayon S, Menon P, Frongillo EA. Different Combinations of Behavior Change Interventions and Frequencies of Interpersonal Contacts Are Associated with Infant and Young Child Feeding Practices in Bangladesh, Ethiopia, and Vietnam. *Curr Dev Nutr*. 2019 Dec 9;4(2): nzz140.

during health facility visits with mass media campaigns, community mobilization, and nutrition-sensitive agricultural activities such as designating eggs for young children, and homestead gardens. Although similar models, the specific intervention activities were adapted to be context- and culture-specific, and participants were exposed to different combinations of the intervention components in different countries.

In Bangladesh, the study results showed significant associations between the study outcomes of interest (e.g. minimum dietary diversity and consumption of iron rich/fortified foods) and the intervention exposures with ≥ 4 contacts with the intervention components. Whereas in Ethiopia, exposure to IPC visits with other intervention components was associated with higher odds of achieving minimum dietary diversity, minimum meal frequency, and consumption of iron-rich foods. In Vietnam, exposure to IPC alone or with mass media was associated with better outcomes, but not with the other intervention components.

Overall, the Alive & Thrive initiative highlights some considerations for community-level intervention. First, it shows that the combination, intensity, and frequency of behavior change interventions required to have impact on consumption behaviors may differ by context. It also shows that multi-component SBC interventions that incorporate communication with other components to address individual, social, and structural barriers are a more holistic approach.

There are several community-level programs focused on improving egg consumption in LMICs that have had mixed results. In Nigeria, a multi-component intervention campaign to improve egg consumption in children did not produce its intended effects. The Egg Demand Creation Campaign was implemented between 2019 and 2020, and targeted households of children 6-59 months⁹⁴. The campaign was specifically designed to employ demand creation programs to focus on creating a desire for

certain foods to influence consumer choice at points of purchase. Thus, the campaign objectives were to emotionally engage caregivers and boost their knowledge and confidence in selecting eggs.

The campaign components included point of purchase advertising, household visits, and community-based engagement activities to increase knowledge about the benefits of eggs and how to prepare them. A quasi-experimental study was conducted to evaluate the program, and findings showed that while there was improved self-efficacy and intent to feed eggs to children and some increased household purchasing of eggs, this did not sufficiently improve egg consumption in children. One possible limitation is that the intervention was implemented during the pandemic, when many families faced economic hardships, and the price of eggs increased by 18%. The study authors suggest that demand-side activities and interventions are insufficient on their own in improving consumption in children. Perhaps a combination of both demand-side and supply-side interventions would be most effective in transforming diets.

In contrast, a three-arm cluster randomized controlled trial in rural Burkina Faso showed that SBC interventions that are culturally tailored can improve egg consumption in resource-limited settings even in communities where egg consumption is low. The SBC intervention was a package of monthly nutrition and agriculture training, individual counseling of mothers during monthly sessions and distribution of a culturally appropriate flipbook that reinforced key messages. The study also showed that increases in egg consumption were greater when the SBC intervention was combined with distribution of livestock resources. In the full intervention arm (SBC + livestock), child egg consumption increased from 0.1 to 6.3 eggs per week, while the partial intervention arm (SBC only) saw an increase of only 2.4 eggs. The authors state that SBC interventions that include the empowerment of

⁹⁴ Larson LM, Frongillo EA, Kase BE, Neufeld LM, Gonzalez W, Erhabor I, Djimeu EW. Effectiveness of the Eggs Make Kids demand-creation campaign at improving household availability of

eggs and egg consumption by young children in Nigeria: A quasi-experimental study. *Matern Child Nutr.* 2023 Jan;19(1): e13447.

women and their decision making, and distribution of livestock assets are more robust strategies that can impact positive change.

A similar intervention was conducted in rural Malawi: a cluster randomized controlled trial aimed to evaluate the effect of an egg intervention (daily egg provision) on dietary intake in infants and young children. Nutrition education was provided to all arms. The findings showed that while the intervention improved dietary intake, it did not sufficiently improve micronutrient intake in infants and young children⁹⁵. Both studies suggest that SBC interventions are good strategies to affect dietary intake and consumption and are more effective when coupled with other social and structural components (e.g. livestock resources).

An example of a community-level program that addresses both the demand- and supply-sides of the food system to improve consumption is the Good Seed Initiative in Tanzania. The goal of

the program was to promote the production and consumption of nutrient-dense African vegetables, aiming to improve food security and encourage healthier food choices among consumers while also strengthening the capacity and productivity of smallholder farmers and MSMEs. Activities included awareness program campaigns at schools, markets, villages and hospitals, promotional materials like handouts and nutritional information on household visits, travelling cooking demonstration shows, and market incentives for producers. The program ran from June 2014 to August 2015.

Study findings showed a statistically significant and positive impact on the dietary diversity of children and women. This shows benefits in designing interventions to also support the producers and subsequently the availability of local food products in the era of globalization and increasing competition of standard vegetables and non-traditional foods in supermarkets and other markets.⁹⁶

Food Safety Education

SUMMARY OF EVIDENCE

There is some evidence that community-level safety interventions positively impact consumer knowledge of food safety and subsequently consumer choice.

Although the evidence is limited, the impact of food safety concerns on dietary behaviors in LMICs cannot be ignored. Some key concerns among consumers include fear of pesticides and fertilizers, hygiene in and around food outlets and markets, vendor practices and handling, and household storage and preparation methods, leading to decreased purchasing and consumption of nutrient-rich foods like animal-sourced foods and fresh produce. Instead,

consumers may reach for starchy staples, dried goods, or processed or packaged foods⁹⁷. Community-level food safety interventions can positively impact consumer choice. Muungano wa Wanavijiji is a federation of the urban poor, and they have employed a mapping project called Red Balloon to improve food safety and handling among street vendors and livestock keepers in Kenya⁹⁸. The floating red balloon serves as an “eye in the sky,” a visible signal to

⁹⁵ Pasqualino, Monica M., et al. "An Egg Intervention Improves Ponderal but Not Linear Growth Among Infants 6–12 mo of Age in Rural Bangladesh." *The Journal of Nutrition* (2024).

⁹⁶ Ochieng J, Afari-Sefa V, Karanja D, Kessy R, Rajendran S, Samali S. How promoting consumption of traditional African vegetables affects household nutrition security in Tanzania. *Renewable Agriculture and Food Systems*. 2018;33(2):105-115.

⁹⁷ Liguori, J., Trübswasser, U., Pradeilles, R., Le Port, A., Landais, E., Talsma, E. F., Lundy, M., Bénédicte, C., Bricas, N., Laar, A., Amiot, M. J.,

Brouwer, I. D., & Holdsworth, M. (2022). How do food safety concerns affect consumer behaviors and diets in low- and middle-income countries? A systematic review. *Global Food Security*, 32, 100606

⁹⁸ Global Alliance for the Future of Food. Systemic Solutions for Healthy Food Systems: Approaches to Policy & Practice. n.p.: Global Alliance for the Future of Food, October 2020.

help the community identify and deal with safety hazards that may threaten the safety of their food and water supplies. The balloon handler walks through the community taking photos every second, creating a map to show mobile vendors and kiosks occupational hazards and places to avoid such as open sewers and garbage piles. This project not only collected important data to guide future community efforts and projects, but also built awareness among the community members, vendors, and consumers to promote better food safety.

Feed the Future's EatSafe program was a successful food safety, community-level intervention implemented in traditional markets in Nigeria and Ethiopia. The aim of the program was to increase consumer demand for nutrient-rich foods through food safety interventions, and greater consumer engagement and empowerment⁹⁹.

In Nigeria, a "Safe Food Market Stand" was open six days a week to and provide information through conversation, visual aids and handouts, and activities (e.g. cooking, food handling, and handwashing demonstrations) about food safety to market shoppers through direct interaction with consumers. The stand helped increase consumer knowledge about food safety and provide them with the communication skills and confidence to engage in discussions with food vendors to make better purchasing decisions. In a 12-month period, more than 10,000 consumers visited the two stands, and 7,000 demonstrations were conducted.

Evaluations of the intervention showed the stand was welcomed and appreciated by the community members and shoppers, with the demonstrations particularly popular. The stand visitors self-reported a change in their behavior as well as increased knowledge and awareness of food safety best practices. Just over half of the respondents reported that the intervention changed how they shopped, handled, and prepared food. Most respondents mentioned that they began buying food from vendors who are clean or sell clean food.

A similar study in Ethiopia was conducted using mass media campaigns to improve consumer awareness on vegetable-related food-borne illnesses in informal markets¹⁰⁰. Over a 9-month period, a multimedia behavior change intervention (i.e. household visits, print ads, radio, television and social media posts) was implemented across two cities to encourage women to choose safe tomatoes at markets and safely prepare them at home.

Post-tests on self-reported food safety behavior and related behavioral determinants (i.e. intentions, knowledge, attitudes, norms and agency) suggested that household visits were associated with safer purchasing and preparation and increased odds of intentions to buy safer tomatoes. Traditional media (print, TV, radio ads) was associated with improved behavior, food safety attitudes including perceived health benefits, social norms, self-efficacy, and knowledge, while social media recall showed no association with any of the outcomes.

⁹⁹ Nordhagen, S, Garsow, A, Swartz, H, Alhassan, MM, and Isyaku, I. Bringing Food Safety to the Shoppers: Implementing Informational Food Safety Stands in Traditional Markets in Nigeria. Global Alliance for Improved Nutrition (GAIN). Working Paper #40. Geneva, Switzerland, 2024. DOI: <https://doi.org/10.36072/wp.40>

¹⁰⁰ Madjian, D. S., van Asseldonk, M., Talsma, E. F., Amenu, K., Gameda, B. A., Girma, S., Roesel, K., Grace, D., Knight-Jones, T. J. D., & de Vet, E. (2024). Impact of a mass-media consumer awareness campaign on food safety behavior and behavioral determinants among women in Dire Dawa and Harar, Ethiopia. *Food Control*, 163, 110509.

Home Gardens & Other Agroecology Community Interventions

SUMMARY OF EVIDENCE

There is promising evidence on the effect of nutrition-sensitive agricultural interventions, such as the promotion of home or community gardening, and homestead production, on household, maternal, or child diets and nutritional status in Feed the Future countries. It is unclear if these interventions encourage sustainable behavior change over longer terms.

Home gardens are another type of community-level and household-level intervention that can improve consumption of nutrient-dense, locally produced food by making these food products accessible for households that otherwise cannot afford to purchase expensive produce, especially with the rising costs of food¹⁰¹. Importantly, across the evidence base, there are mixed findings regarding the impact of agroecological interventions on diets due to short intervention periods and a lack of sustained behavior change. Further, many studies examine changes in micronutrient status and anthropometric outcomes, as opposed to diets¹⁰².

For example, in Bangladesh, several studies show that home garden interventions produce enough vegetables to meet household needs^{103,104}. A study conducted in India showed that home gardens can yield enough produce to both support the household nutritional needs and have excess to sell. Preparation and consumption of green leafy vegetables increased from a weekly mean frequency of 1.9 to 2.4. Weekly frequency and quantity of eggs consumed more than doubled among

households who set up backyard poultry production¹⁰⁵.

However, some studies in Africa show different results. In West Africa, a cRCT A review by Depenbusch et al. evaluated three randomized controlled trials in Kenya, Tanzania, and Uganda and found that an integrated home garden project, which included vegetable seed and hands-on training in gardening, had no significant effect on vegetable consumption over a two-year period¹⁰⁶. In Tanzania, the intervention led to a 20% increase in the number of households producing vegetables; however, in Kenya and Uganda, the results did not increase vegetable production. Some limitations of the study might be the low participation rate due to staffing issues, project implementation difficulties, quality of facilitation, incentives, timeliness of invitations, and whether the training appropriately addressed the participants' true needs. Study results also may have been affected by households who already produce substantial quantities of vegetables and are more interested in selling than consuming.

More recently, a cRCT in Tanzania enrolled more than 1,000 women of reproductive age to

¹⁰¹ Dizon, F., Josephson, A., & Raju, D. (2021). Pathways to better nutrition in South Asia: Evidence on the effects of food and agricultural interventions. *Global Food Security*, 28, 100467

¹⁰² Osei A, Pandey P, Nielsen J, Pries A, Spiro D, Davis D, Quinn V, Haselow N. Combining Home Garden, Poultry, and Nutrition Education Program Targeted to Families with Young Children Improved Anemia Among Children and Anemia and Underweight Among Nonpregnant Women in Nepal. *Food Nutr Bull*. 2017 Mar;38(1):49-64.

¹⁰³ Irfanullah HMd, Adrika A, Ghani A, Khan ZA, Rashid MdA. Introduction of floating gardening in the north-eastern wetlands of Bangladesh for nutritional security and sustainable livelihood. *Renewable Agriculture and Food Systems*. 2008;23(2):89-96.

¹⁰⁴ Ferdous, Z., Datta, A., Anal, A. K., Anwar, M., & Khan, A. S. M. M. R. (2016). Development of home garden model for year-round production and consumption for improving resource-poor household food security in Bangladesh. *NJAS - Wageningen Journal of Life Sciences*, 78, 103-110.

¹⁰⁵ Murty, P.V.V.S., Rao, M.V. & Bamji, M.S. Impact of Enriching the Diet of Women and Children Through Health and Nutrition Education, Introduction of Homestead Gardens and Backyard Poultry in Rural India. *Agric Res* 5, 210–217 (2016). <https://doi.org/10.1007/s40003-016-0206-x>

¹⁰⁶ Depenbusch, L., Schreinemachers, P., Roothaert, R., Namazzi, S., Onyango, C., Bongole, S., & Mutebi, J. (2021). Impact of home garden interventions in East Africa: Results of three randomized controlled trials. *Food Policy*, 104, 102140.

understand if vegetable home gardens could improve women's dietary diversity, household food security, maternal and child iron status, and the probability of women consuming nutrient-rich food groups over a 3-year period¹⁰⁷. Households in the intervention villages received agricultural training, inputs to promote home production of nutritious crops, and nutrition and health education. Results after one year of the intervention found significant improvements in dietary diversity. However, at three years, the difference in dietary diversity disappeared, even though the number of women who grew at least one crop was significantly higher (75 percentage points, 95% CI: 72, 81) in intervention households compared to controls. Barriers to maintaining a home garden included costs, lack of irrigation and fencing materials, and poor family support.

Similarly, a 2-year cRCT implemented by Helen Keller Intl in Burkina Faso found statistically significant improvements in dietary intake and overall dietary diversity scores in women through an integrated agriculture and nutrition program¹⁰⁸. These positive results also extended to household consumption, as well as reduced food purchases and use of food from stores

between baseline and endline in intervention households as compared to control households.

An analysis by Muthini et al. of subsistence production and dietary diversity in Kenya showed promising evidence that increased production diversity on smallholder farms is associated with increased dietary diversity (observed in both household level dietary diversity scores, and individual level dietary diversity scores for women and children). Although, the average magnitude of these effects was small (reasons for the small effect was not examined), which the authors note as a potential research gap. The study authors also suggest that while diversification can be a strategy to improve dietary diversity and consumption among smallholder households, strengthening markets and improving smallholder access to markets seem to be a more effective strategy.

Given the demonstrated success of few interventions on dietary outcomes and consumption in the short term, greater exploration and research is required to assess the suitability, design, and effectiveness of home garden interventions in different contexts and over longer periods.

¹⁰⁷ Blakstad MM, Moshia D, Bliznashka L, Bellows AL, Canavan CR, Yussuf MH, Mlalama K, Madzorera I, Chen JT, Noor RA, Kinabo J, Masanja H, Fawzi WW. Are home gardening programs a sustainable way to improve nutrition? Lessons from a cluster-randomized controlled trial in Rufiji, Tanzania. *Food Policy*. 2022 May; 109:102248.

¹⁰⁸ Olney DK, Bliznashka L, Pedehombga A, Dillon A, Ruel MT, Heckert J. A 2-year integrated agriculture and nutrition program targeted to mothers of young children in Burkina Faso reduces underweight among mothers and increases their empowerment: A cluster-randomized controlled trial. *Journal of Nutrition*. 2016;146(5):1109–1117



School-Level Interventions

Multi-Component Interventions

SUMMARY OF EVIDENCE

Multi-component school-based interventions such as the Nutrition Friendly Schools Initiative show promising results in other LMICs to improve nutrition and diet-related health outcomes.

The school food environment – encompassing policies, programming and services, nutrition education, and staff – plays a crucial role in shaping child and adolescent knowledge, attitudes and practices toward healthy diets. Current evidence from systematic reviews and meta-analyses focuses on single-domain interventions like nutrition education, which do not address the multiple factors contributing to demand for nutritious foods including food promotion, food access and availability, and food policies in and outside of the school.

There is increasing evidence supporting integrated multi-component interventions including, but not limited to, nutrition and physical education; promoting the sale of healthier foods and beverages; encouraging participation in school meal and snack programs; role-modeling healthy eating

behaviors and physical activity; providing access to free drinking water, sanitation, and hygiene services; and restricting non-nutritious food marketing both inside and outside of school. However, most of the existing evidence for these interventions comes from high-income countries, limiting its applicability to resource-constrained settings¹⁰⁹.

Building on existing programs and initiatives including the Health Promoting School approach and the Focusing Resources on Effective School Health (FRESH) initiative, WHO and partners launched the Nutrition Friendly Schools Initiative (NFSI) in 2020 to provide a framework for ensuring integrated school-based programs that address the double burden of malnutrition. The NFSI has since been implemented in a number of countries, including Burkina Faso¹¹⁰.

¹⁰⁹ World Health Organization. Nutrition action in schools: a review of evidence related to the Nutrition-Friendly Schools Initiative. Geneva: World Health Organization; 2020. Licence: CC BY-NC-SA 3.0 IGO. Available from: <https://iris.who.int/bitstream/handle/10665/338781/9789241516969-eng.pdf>

¹¹⁰ Delisle HF, Receveur O, Agueh V, Nishida C. Pilot project of the Nutrition-Friendly School Initiative (NFSI) in Ouagadougou, Burkina Faso and Cotonou, Benin, in West Africa. *Glob Health Promot.* 2013 Mar;20(1):39-49.

Food Procurement & Provision

SUMMARY OF EVIDENCE

While many Feed the Future countries have implemented school meal programs, evaluation evidence on their effectiveness has been limited to micronutrient adequacy and anthropometric or educational outcomes. Studies in high-income countries and other LMICs have seen improvements in relieving hunger and dietary intake through school meal programming.

School meal programs, which provide school-aged children and adolescents with meals, snacks, or take-home rations, are among the most widespread safety nets globally, reaching an estimated 418 million children in 2022, and operating in more countries than any other safety net¹¹¹. In recent years, home-grown school feeding programs have gained significant momentum. These initiatives integrate the procurement of locally produced food into school meal programs, aiming to stimulate local economic growth and drive agricultural transformation. By sourcing food from smallholder farmers to meet the needs of schools, these programs seek to establish a new market for farm produce and generate

employment opportunities across the food system. Over the past decade, African governments have increasingly exhibited support for school meals through their budget allocations and policy frameworks.

Leveraging home-grown meals presents a prime avenue for steering consumption patterns toward whole foods. Notably, children within these settings often exhibit greater receptivity to dietary changes, making them pivotal agents for broader shifts in eating habits. More research is needed to evaluate the multi-generational and broader societal impact of school nutrition programs, including on indirect beneficiaries such as smallholders and MSMEs.

Regulating School Food Environments

SUMMARY OF EVIDENCE

There is limited evidence on the impact of school regulations to reduce exposure to non-nutritious food marketing in Feed the Future countries.

WHO has provided guidance for creating regulatory interventions aimed at shaping the school food environment, which includes all areas and conditions within and around schools where food is available, acquired, or consumed. WHO advocates for establishing nutrition standards for foods offered and sold within schools, as well as limiting the marketing of non-nutritious foods and beverages in these settings. However, there is limited documentation on the global nature of such

policies, as well as a lack of evidence regarding their implementation and impact¹¹². A recent review by Perry et al. found that in LMICs, four countries had national, mandatory policies to limit marketing for or sales of foods and beverages within and immediately surrounding schools, nine countries had competition policies, and nine countries had both marketing and competition policies¹¹³. Importantly, none of the LMICs included were USAID countries.

¹¹¹ World Food Programme. [The State of School Feeding Worldwide 2022](#). Rome: WFP.

¹¹² Implementing school food and nutrition policies: a review of contextual factors. Geneva: World Health Organization; 2021. Licence: CC BY-NC-SA 3.0 IGO

¹¹³ Perry M, Mardin K, Chamberlin G, Busey EA, Taillie LS, Dillman Carpentier FR, Popkin BM. National Policies to Limit Food Marketing and Competitive Food Sales in Schools: A Global Scoping Review. *Adv Nutr*. 2024 Jun 12;15(8):100254.

School-Based Nutrition Education

SUMMARY OF EVIDENCE

There is limited evidence on the impact of school-based nutrition education interventions to promote knowledge, attitudes and practices on healthy eating in Feed the Future countries.

Effective school-based nutrition education interventions incorporate theory-based strategies and skill-building activities (such as school gardens or cooking demonstrations) with sufficient time and intensity to shape attitudes and foster skill development. Successful interventions also employ appropriate teaching methods with ample teacher training opportunities. These interventions are culturally relevant and actively involve families. When school nutrition education programs are integrated with the surrounding community, the benefits extend beyond students, positively impacting school staff, families, and the broader neighborhood.

Evidence on the effectiveness of school nutrition education interventions has been largely drawn from HICs. Of the few reviews in LMICs, several have observed improvements on nutrition knowledge, fruit and vegetable intake, and decreases in SSB consumption^{114,115,116,117}. Importantly, studies included within these reviews were not conducted in USAID countries.

More recently, trials conducted in Ethiopia and Bangladesh offer some promise. In Ethiopia, a non-masked, cRCT delivered a package of school-based nutrition education interventions to 536 adolescent girls during one school semester. Their findings suggest that the intervention improved practices related to dietary diversity (adjusted odds ratio 5.37 [95% CI 3.04–9.50], $p < 0.0001$) and meal frequency among young adolescent girls; however, was limited in changing other food choice behaviors, such as junk food consumption based on nutrition education alone¹¹⁸. Additionally, both adolescent girls and their parents in the intervention group had higher knowledge at endline than those in the control group about dietary diversity, meal frequency, and consumption of non-nutritious foods. Similar results were found in a matched, pair-cluster RCT in Bangladesh with 300 adolescent girls, whereby consumption of organ meat, vitamin A-rich fruits and vegetables, legumes, nuts, and seeds in the intervention group was higher compared to controls at endline¹¹⁹.

¹¹⁴ Shinde, S., Wang, D., Moulton, G. E., & Fawzi, W. W. (2022). School-based health and nutrition interventions addressing double burden of malnutrition and educational outcomes of adolescents in low- and middle-income countries: A systematic review. *Maternal & Child Nutrition*, e13437.

¹¹⁵ Kyere P, Veerman JL, Lee P, Stewart DE. Effectiveness of school-based nutrition interventions in sub-Saharan Africa: a systematic review. *Public Health Nutr*. 2020 Oct;23(14):2626-2636.

¹¹⁶ Klingberg S, Draper CE, Micklesfield LK, Benjamin-Neelon SE, van Sluijs EMF. Childhood Obesity Prevention in Africa: A Systematic Review of Intervention Effectiveness and Implementation. *Int J Environ Res Public Health*. 2019 Apr 4;16(7):1212.

¹¹⁷ Abdel Rahman A, Jomaa L, Kahale LA, Adair P, Pine C. Effectiveness of behavioral interventions to reduce the intake of sugar-sweetened beverages in children and adolescents: a systematic review and meta-analysis. *Nutr Rev*. 2018 Feb 1;76(2):88-107.

¹¹⁸ Kim SS, Sununtnasuk C, Berhane HY, Walissa TT, Oumer AA, Asrat YT, Sanghvi T, Frongillo EA, Menon P. Feasibility and impact of school-based nutrition education interventions on the diets of adolescent girls in Ethiopia. *Lancet Child Adolesc Health*. 2023 Oct;7(10):686-696.

¹¹⁹ Nyma, Z., Rahman, M., Das, S., Alam, M. A., Haque, E., & Ahmed, T. (2023). Dietary diversity modification through school-based nutrition education among Bangladeshi adolescent girls: A cluster randomized controlled trial. *PLoS One*, 18(3), e0282407.

EVIDENCE GAPS & FUTURE RESEARCH

The results of this literature review found significant uncertainty in the existing evidence regarding interventions aimed at enhancing the supply and demand for nutritious foods. However, it also highlights emerging considerations for planning, implementing, and monitoring these interventions. Notably, this review is based on peer-reviewed evidence available in the public domain. To better understand and apply this evidence, it is crucial to consider the context in which interventions are implemented by leveraging other sources of data, including traditional knowledge.

1. Research in LMICs

Research on food environments has traditionally focused on high-income countries, leaving significant evidence gaps in the context of LMICs. Characterizing food systems in LMICs presents inherent complexities and variations based on infrastructure, socio-cultural factors, trade liberalization, economic development, rurality, governance, and other factors that impact food access and availability, food promotion, food safety, food desirability and convenience, and food affordability.

2. Better Understanding of Diverse Target Populations

Designing and delivering appropriate interventions within and outside of food systems requires an understanding of the target population and context, including drivers and barriers of food choice across personal, family, digital, and external food environments. Currently, many interventions focus on two population groups – women and children – due to their nutrition vulnerability. While women are responsible for food preparation, they may be limited in what they can purchase. There is


To better understand and apply this evidence, it is crucial to consider the context in which interventions are implemented by leveraging other sources of data, including traditional knowledge.

insufficient evidence in how effective interventions are in creating demand in other population groups, especially men, who in rural contexts decide what crops are produced and how much of the produce and livestock products go to market; and who often dictate monthly expenditure on food, what is purchased, and how food portions are distributed among household members. In addition, few interventions (outside of schools) mobilized adolescents and youth – the next generation who will directly face the consequences of poor availability and accessibility to nutritious foods. Understanding food choice in this age group, while challenging, is important for broader understanding of influence on households.

3. Comprehensive Metrics and High-Quality Data

Complex food systems can be better understood by developing appropriate metrics and measurement tools,¹²⁰ employing mixed methods research that leverages other forms of knowledge, and collecting routine high-quality data, especially within markets. This is applicable for both public and private sector interventions such as regulation of digital food environments (i.e. frequency of non-nutritious food advertisements on social media), as well as food safety considerations. Further research should

¹²⁰ USAID Advancing Nutrition. 2021. Methods, Tools, and Metrics for Evaluating Market Food Environments in Low- and Middle-Income Countries. Arlington, VA: USAID Advancing Nutrition.



explore the use of delivery platforms and settings aside from schools to reach youth, such as social media and internet-based interventions^{121,122}.

Additionally, survey data that characterizes cognitive elements of food culture can inform campaigns for shifting norms and making foods more desirable and enjoyable. Using this data, interventions can be improved in terms of their design features and their evaluations.

4. Research on Packages of Interventions

No single measure is a magic bullet for promoting healthy diets. The most effective response is a comprehensive one, implementing a range of complementary and coordinated actions across sectors that operate coherently and synergistically to contribute to the broader policy goal. Across most interventions included in this review, few were multi-component in nature. Because of the breadth of policies and interventions that may impact diets, there is the possibility that one policy or intervention may negate another's effectiveness or have unintended spillover effects.

As of 2022, 42 countries have measured the extent of food environment policy implementation using the Healthy Food Environment Policy Index (Food-EPI),¹²³ developed in 2013 by the International Network for Food and Obesity/NCDs Research, Monitoring and Action Support (INFORMAS) to help governments assess their progress; identify policy gaps in the creation of nutritious food environments; and set an agenda for change. Of relevance, Burkina Faso,

Tanzania, Senegal, and Uganda have started assessments, while Ghana, Kenya, and Guatemala have completed the assessment of government action towards improving food environments.

In Ghana, the extent of implementation of food environment policies was assessed and priority actions were identified. Twenty-one areas of good practice were in the implementation phase, which included the adoption of FAO's Codex Alimentarius¹²⁴ guidelines for regulating nutrition labeling for packaged foods and prohibiting misleading claims on foods; however, enforcement was questionable. Importantly, no government action was found for infrastructure support, which included food composition standards for food service retailers, or nutrition information systems for labeling and interaction with the private sector. In relation to international best practices, 75% of policy areas were assessed as low or with very little government action (i.e. taxes, subsidies, food retail, and provision)¹²⁵.

In contrast, Kenya's baseline assessment found up to one-third of the indicators of government policy action rated to be in the implementation phase, and half of the policy indicators rated as in the development stage. No indicator was ranked in the evaluation phase. Compared against international benchmarks, no indicator was rated as high implementation and there were only four indicators scored as moderate implementation. More than two-thirds of the indicators were rated as low or little implementation. These findings suggest that most government policy action to create healthier food environments in Kenya is still at the development stage, with policy action that is

¹²¹ Chau MM, Burgermaster M, Mamykina L. The use of social media in nutrition interventions for adolescents and young adults-A systematic review. *Int J Med Inform.* 2018 Dec; 120:77-91.

¹²² Khizar, M., Ruel-Bergeron, J., Zavala, E., Chang, K., Kang, Y., de Pee, S., Black, R. E., & Christian, P. Delivery platforms for reaching adolescents with nutrition interventions in low- and middle-income countries. *Annals of the New York Academy of Sciences.* 2024 (Online first)

¹²³ Swinburn B, Vandevijvere S, Kraak V, Sacks G, Snowdon W, Hawkes C, Barquera S, Friel S, Kelly B, Kumanyika S, L'Abbé M, Lee A, Lobstein T, Ma J, Macmullan J, Mohan S, Monteiro C, Neal B, Rayner M, Sanders D, Walker C; INFORMAS. Monitoring and benchmarking government policies and actions to improve the

healthiness of food environments: a proposed Government Healthy Food Environment Policy Index. *Obes Rev.* 2013 Oct;14 Suppl 1:24-37. doi: 10.1111/obr.12073. PMID: 24074208.

¹²⁴ The Codex Alimentarius is a collection of internationally adopted food standards and related texts presented in a uniform manner. These food standards and related texts aim to protect consumers' health and ensure fair practices in the food trade.

¹²⁵ Laar, A., Barnes, A., Aryeetey, R., Tandoh, A., Bash, K., Mensah, K., Zotor, F., Vandevijvere, S., Holdsworth, M. (2020) Implementation of healthy food environment policies to prevent nutrition-related non-communicable diseases in Ghana: National experts' assessment of government action. *Food Policy*, 93, 101907. <https://doi.org/10.1016/j.foodpol.2020.101907>

more fully developed not fully meeting international benchmarks¹²⁶.

In comparison, Guatemala scored the lowest in the implementation of 50 food environment policies, with 26% of indicators with no implementation, 28% at very low implementation, 42% at low, and 4% at medium (none were rated high). Indicators at medium implementation were related to the use of evidence for developing policies and ingredient list/nutrition information panels on packaged foods. Seventy-seven actions were recommended for immediate action, including those related to strengthening governance, food labeling, food provision and safe drinking water in schools¹²⁷.

While understanding the landscape of policies that exist is important, their evaluation on consumer demand is critical. Therefore, future research should prioritize developing, implementing, and evaluating context-specific packages of interventions or multi-duty actions to understand effects on diets, as well as synergies and trade-offs.

5. Research and Evaluation at the Retail Level

Prioritizing research on the combined effect of taxes and subsidies in the public sector, as well as both supply and demand interventions for MSMEs in the private sector, is needed. Informal food vendors and MSMEs are an extremely important and large proportion of the private

sector with great potential to be leveraged to transform food systems and improve consumption. However, greater understanding and support are required to mitigate barriers and challenges they face and ensure their success to increase the availability, accessibility and affordability of healthy and safe foods (e.g. financial capital, infrastructure, resources, training and capacity building, and ICT). In addition, much of the existing evidence on MSMEs and how they impact our food environment and consumer choice is limited to upstream strategies that are supply-focused (e.g. at the level of food processing, packaging, distribution, and transport). Research and evaluation should be explored to identify more demand-side interventions at the retail level to shape food choice and diets.

6. Implementation Studies

Current evaluations poorly capture implementation fidelity, including intervention exposure, quality, and cost. This is critical to replicate and scale interventions, provide appropriate resourcing, and have confidence that observed effects (or lack thereof) can be attributed to the intervention. Future evaluations should prioritize mixed methods to understand equity aspects, such as interventions effectiveness by socioeconomic status, setting (rural versus urban) and gender that may correlate with diet quality and health, rather than purchasing behavior.

¹²⁶ Asiki, G; Wanjohi, M; Barnes, A; Bash, K; Vandevijvere, S, Muthuri S, Kimani E, Holdsworth, M. (2019). Benchmarking policies for creating healthy food environments in Kenya to prevent diet-related non-communicable diseases (NCDs). Healthy Food Environment Policy Index (Food-EPI) country scorecards and priority recommendations for action in Kenya. doi.org/10.17608/k6.auckland.8251415

¹²⁷ Sánchez-Nóchez, C.M., Ramirez-Zea, M., Vandevijvere, S. et al. Benchmarking public policies to create healthy food environments compared to best practice: the Healthy Food Environment Policy Index in Guatemala. *Arch Public Health* **80**, 174 (2022). <https://doi.org/10.1186/s13690-022-00928-w>

POTENTIAL OPPORTUNITIES FOR USAID

Public and private sectors have a critical role to play in seeking to influence food purchases and other food choices, and particularly in increasing demand for healthy and safe diets. This requires expanding and refining approaches to create the desire for nutritious foods that people purchase and eat. Crucially, measures must be locally tailored to be effective as countries are at different stages of economic and food systems development, which shape opportunities for transformative change. Within the public sector, there exists a window of opportunity for holistic approaches to increase consumer demand for healthy diets. This includes the scaling of subsidy programs that are linked to markets, adoption, and enforcement of regulations on marketing and labeling of foods high in saturated fatty acids, trans-fatty acids, free sugars, or salt within markets and in schools, as well as promoting nutritious foods through mass media campaigns and public food procurement.

The evidence suggests several opportunities that USAID could consider pursuing. The following opportunities are based on the evidence of effective interventions identified in the literature reviewed for this report. Each of these opportunities should be assessed in the context of USAID's Nutrition Strategy and operations to determine their relevance and feasibility for USAID.

1. Integrated, Multi-Sectoral Actions



Nutrition policy experts have stated the importance of monitoring and benchmarking food environments around the globe to make progress in their improvement. However, few Feed the Future countries have conducted a landscape assessment of current policies, including the level of implementation to identify and prioritize policy and multi-sectoral actions for the creation of nutritious food environments. This is required to develop a whole-of-government approach for healthy and safe diets, track progress, as well as understand co-benefits and trade-offs across sectors. Additionally, this will allow for opportunities to engage with civil society and the private sector and create a shared vision for food systems transformation.

2. Private Sector Approaches



Private sector engagement in efforts to increase the demand for nutritious foods is critical across businesses of all sizes and scope. There is an urgent need for the public sector to collaborate with businesses to invest in large-scale, continuous, and innovative efforts to ensure food safety. This report focuses specifically on interventions targeting MSMEs. Opportunities to support MSMEs include developing incubator and accelerator programs that can help to de-risk investments and innovations; building partnerships among smallholder farmers, retailers, and consumers; and sharing resources through interventions such as distribution hubs. More evidence is needed on MSME interventions' ability to increase demand for nutritious food and bring promising innovations to the market faster, more safely, and in a cost-effective manner. There is opportunity for USAID to provide the networks, expertise, and technologies MSMEs need to develop a greater understanding of, and demand for, more diverse nutrient foods and to expand to new markets.

3. Research that Fills Evidence Gaps



As this review suggests, there are evidence gaps on the impact of interventions on nutritious diets beyond micronutrient status and anthropometry. Investment is needed in research within public and private spheres, especially related to multi-component interventions such as cash-plus and social and behavior change plus programs, the combined effect of taxes and subsidies, leveraging the Nutrition Friendly Schools Initiative, and supply and demand interventions for the private sector like the promotion of food safety across markets and households.

4. Data Integration & Novel Metrics



Novel consumer demand metrics and consolidated publicly available data sources are needed to better understand the context-specific facilitators and barriers to healthy and safe diets across population groups. In particular, this review found an absence of metrics on food choice such as: perceptions of the health and nutrition benefits of food; psychological sociocultural factors that influence food choice; food sensory appeal; and the influence of social interactions and safety and ethical concerns on food choices. The development and use of these metrics could improve intervention design and evaluation. Policy and program design would also benefit from increased collection, analysis, and aggregation of data across the public and private sectors to develop a more complete understanding of the dynamics and linkages at play throughout local food systems. Linking public and private sector data could significantly improve knowledge of what interventions work, in which settings, why, and how they could be scaled. This data would also facilitate tracking of national progress on healthy diets.

5. Targeted Monitoring, Evaluation & Learning



This review identified the need for more real-world evidence on consumer demand interventions for healthy and safe foods within all population groups in LMICs. This includes independent and rigorous monitoring and assessment of approaches to generate consumer demand for healthy diets, such as food-based dietary guidelines, locally-tailored consumer subsidies, and restricting marketing of unhealthy products—all notable gaps in the available evidence. In addition to more research on the effects of these approaches, there is also a need for cost-effectiveness studies, implementation studies, and impact modelling to provide policymakers, funders, implementers, and other actors with information to guide strategic planning, financial projections, and priority setting to address healthy diets at scale.

6. Exploration of New Food Environments



New food environments, including the digital food environment, are shaping food acquisition and consumption in ways that extend beyond the physical food environment and have implications for diets and nutrition. The literature reviewed highlighted the potential for digital food environments to positively disrupt the food supply by making it more productive, cost efficient, transparent, and agile. However, there is little evidence on the impact of these new environments on the demand for nutritious foods in LMICs. Specifically, new frameworks are required to understand and encourage potential positive impacts of the digital food environment and harness its potential to help consumers make nutritious food choices. Experts consulted for this review noted that policymakers would also benefit from increased understanding of national digital ecosystems, monitoring youth exposure to advertisements for unhealthy products, and best practices for promoting positive digital food environments.

ANNEX 1: LITERATURE REVIEW METHODS

This research was undertaken in three stages:

Phase 1: Systematic or scoping reviews

An initial search of systematic and scoping reviews of eligible interventions was conducted to collate already-existing, high-quality evidence. This allows for the identification of evidence gaps or areas that could benefit from additional searching as delineated in Phase 2 (a search of individual high-quality primary studies including programmatic evaluations).

Phase 2: Individual high-quality primary studies, including programmatic evaluations

A search of individual high-quality primary studies assessing interventions, including program evaluations, was conducted as a supplement to Phase 1. This phase explored existing primary research for areas of interest where systematic reviews and/or meta-analyses are lacking. This phase also ensures high-quality, primary interventional studies or programs are included and highlighted, using the criteria listed in Table 1.

Phase 3: High-level reports

A search of recent high-level reports that provide key evidence gaps and recommendations for future research.

Search Strategy

A comprehensive search of the literature was conducted from the year 2000 onwards using the following databases:

- Medline
- Web of Science
- Scopus

To ensure maximum coverage of unpublished literature, and reduce the potential for publication bias, the authors searched the following organizational websites and databases using keyword searches for unpublished grey literature in health, health promotion, and nutrition:

- eLENA (WHO e-Library of Evidence for Nutrition Actions)
- International Initiative for Impact Evaluation (3ie)
- World Obesity
- International Food Policy Research Institute (IFPRI)
- Food and Agriculture Organization (FAO)
- World Bank
- International Network for Food and Obesity Research, Monitoring and Action Support (INFORMAS)
- IMMANA
- Food Forward NDCs
- Global Alliance for the Future of Food Alliance for Improved Nutrition

Table 1. Eligibility Criteria for Included Reviews and Studies

	Inclusion	Exclusion
Population	<p>Individuals and households, with prioritization of vulnerable groups (e.g. women of reproductive age and children)</p> <p>LMIC setting, according to the World Bank, especially Feed the Future countries</p>	High income country, according to World Bank classification
Methodology	<p>Systematic reviews of individual studies or of reviews (umbrella reviews) of eligible interventions reporting quantified outcomes with or without meta-analysis, that predominantly (>50%) include studies with designs that allow causal inference of the impact of interventions on outcomes, e.g. -</p> <ul style="list-style-type: none"> • Randomized Controlled Trials (RCTs) • Non-Randomized Controlled Trials (NRCTs) • Controlled Before-After (CBA) studies • Interrupted-time-series (ITS) • Repeated Measures Studies (RMS) 	
Intervention	<p>Single component and multicomponent food environment interventions or programs which relate to:</p> <ul style="list-style-type: none"> • Food availability • Food accessibility • Food marketing and promotion • Food safety • Food pricing 	
Comparator	Populations that receive no intervention or program, those who receive the standard of care or business as usual.	
Outcomes of interest	<p>Primary Outcomes:</p> <ul style="list-style-type: none"> • Direct measures of consumption • Diet quality • Share of total expenditure on food • Share of food expenditure on non-staples <p>Secondary Outcomes:</p> <ul style="list-style-type: none"> • Food security • Anthropometric outcomes • Diet-related health outcomes 	

Types of Interventions

This review included behavioral and environmental interventions, both preventive and curative, targeting individuals and households, particularly vulnerable populations including women and children in LMICs, which are conducted at the market, school, or household level. Behavior change interventions, in the context of the food environment, foster knowledge and awareness on nutrition and are delivered through health promotion and communication strategies, including single and multi-component nutrition education interventions. Several theories and models of behavioral change such as theory of planned behavior, behavioral theory of the firm, diffusion of innovation theory, the social cognitive theory, and the health belief model offer insight into the behavioral relationship between food environment interventions on diets and diet-related health outcomes. In contrast, environmental interventions target the various spheres of an individual's environment that influence their choice in food and beverages. These include structural modifications of the built environment, pricing, advertising, and availability of food items.

Types of Outcomes

Food environment interventions and their effect on primary and secondary outcomes were prioritized throughout this umbrella review.

Primary Outcomes

1. Direct measures of consumption

- Frequency of Consumption
- Energy Intake
- Macronutrient and Micronutrient Intake
- Food Group Intake
- Food Consumption Score

2. Diet quality

- Diet Diversity Score (including Minimum Dietary Diversity for Women)
- Meal Score
- Healthy Eating Index
- Other Diet Quality Indices
- Diet Adequacy

3. Share of total expenditure on food

4. Share of food expenditure on non-staples

Secondary Outcomes

1. Food Security

2. Anthropometric Outcomes

- Height (including stunting)
- Weight (including wasting)
- Body composition
- Mid-upper-arm circumference

3. Diet-related Health Outcomes

- Micronutrient deficiencies
- Type 2 Diabetes
- Hypertension
- Biomarkers of micronutrient deficiencies

Duration of Follow-up

The authors did not include or exclude reviews or studies based on duration of follow-up. If studies include multiple follow-ups, they included the outcome measures most similar to that presented in the other studies included in any single meta-analysis and report any additional follow-ups narratively.

Types of Settings

The authors included studies assessed an intervention in any LMIC setting, as defined by the World Bank, as long as all other inclusion criteria are met. They included studies conducted at the household, school, or community level (including out-of-school childcare). The World Bank provides a comprehensive list of all the countries falling under this LMIC definition.

ANNEX 2: ROUNDTABLE KEY MESSAGES

The following non-attributable points were shared by speakers invited to participate in a virtual roundtable on July 31, 2024. The discussion was hosted by the Board for International Food and Agricultural Development (BIFAD) in collaboration with the U.S. Agency for International Development (USAID). The messages below have been edited for clarity and tone.

Opening Remarks

- One of BIFAD's four work streams focuses on nutrition, specifically on the availability of safe and affordable nutritious foods. BIFAD is concentrating on the demand side for nutritious foods, looking at evidence on interventions and approaches to increase the sale, distribution, purchase, and consumption of nutritious foods.
- Nutrition is central to development. A healthy, nutritious diet is essential to the achievement of nearly all development goals, from eradicating poverty to preventing maternal and child deaths to providing a foundation for economic growth. The climate crisis is a nutrition crisis.
- BIFAD will deliberate on the feasibility, trade-offs, and potential outcomes of a series of actions USAID could take to increase demand for safe, nutritious food. This will lead to formal recommendations about policies, programs, and market-based approaches the Agency could undertake to achieve this goal.
- Demand is not just at the individual or household level. Demand for novel foods or more diverse production must also

If we are going to achieve demand for healthy, diverse, safe diets, more must be done beyond agricultural growth.

come from the private sector, from companies that purchase foods and transform them into processed foods that make up the bulk of diets in many parts of the world today.

- Most of the world is now urban and there are by far more consumers than producers of food in the world, but we are all talking about rural consumers knowing that even smallholder farmers are net purchasers of food.
- Food environments and food markets are changing rapidly, even in the remotest areas of the world.
- We need to learn from existing evidence, as well as evidence to be collected, to help guide USAID in doing things differently to support the demand side and connect it to the supply side.

Plenary Discussion

Policy

- Taxes on sugar sweetened beverages (SSB) are a regressive tax, which have a disproportionate impact on lower socioeconomic groups.
- The revenue collected from SSB taxes could be invested in initiatives that benefit households with lower income. SSB taxes are not necessarily regressive as studies have found that their effects, as well as the health care gains they generate, could be progressive.
- Front of package labeling should be voluntary versus mandated.
- It is important to integrate taxation and subsidies for nutritious food.
- Consider government – local as well as federal – as an institution that can create demand through public procurement.
- Focus on a reduction of food loss and waste, especially in nutritious agricultural products, as a policy area.

Interventions

- To achieve healthy diets, flip the focus to think about demand over supply. Shape the demand early so that supply meets demand and not the other way around. How and where food is grown could be informed by patterns of demand that need to shift.
- Facilitate more thought leadership on demand for healthy diets across all levels: government, food companies, and the household. Go beyond the benefits of breastfeeding or dietary guidelines; get granular.
- Evidence on the sustainability of nutrition behavior change is slim.
- Consider all the determinants of choice beyond affordability. Stop assuming people do not know what's good for them. Determinants of choice can relate to political economy concerns,

Demand creation for healthy diets can happen at the household, private sector, and government levels. USAID must work in partnership with many actors on many activities to make an impact.

time poverty, taste, cultural habits, etc. Do not accept those as constraints; tackle them one by one using technological and marketing innovations.

- It is important to look at the role of continued financing and investments in systems that focus on the demand side.
- What is the evidence of the differential impact when integrating multiple interventions?
- The public procurement space is a mechanism that can unlock the space for the private sector, but this is outside of USAID's traditional programmatic interventions.
- We need good information, coupled with innovation in the digital age, that can be the basis for engagement and communication. Messages are currently being drowned out by the private sector, which is more about advertising and marketing of products that are not always appropriate or healthy.
- There are many more tools to decrease consumption of non-nutritious foods than there are tools to increase consumption of nutritious foods.
- Could a convergence of policies help with integration of interventions?

Social Media Influence

- Need to counter unfounded claims on social media that foster fear on food safety. Need evidence of real risks.

USAID Role

- Approach USAID's role through a rigorous lens of feasibility and practicality: what can USAID do *specifically*?
- Do more at the market and retail level, taking advantage of USAID's private sector partnerships.
- Look at the display voucher promotional campaign created by the Access to Nutrition Initiative and GAIN that had health star rating and specific levers.

Private Sector

- Pair local SMEs with local colleges or universities that understand the cultural context to help with research innovation.
- Work with food companies on negative and positive marketing.
- Packaging can be a huge add-on cost. How can packaging be less expensive and be done locally?

- There is a need to support consumer research to help the private sector determine what will work or if there would be resistance to reformulation.

Country Context

- We need more research on population groups beyond women and children.
- Consider the profound impact of cultural norms, especially intrahousehold allocation of food, dynamics of labor and workload, and the role of gender. Women are bearing almost the entire burden of feeding their families. Any critical strategy on healthy diets needs to focus on lifting the burden on women.
- The country context shapes the way people eat (i.e. traditional wet market street foods in Southeast Asia). It influences nutrition and food safety.

Breakout Group 1: Public Sector Role

Behavior Change

- Increase public investments for behavior change campaigns that influence consumer demand.
- Consumers' perceptions, specifically related to chemicals in food and food safety, are influenced by social media. Media literacy and the role of social media in behavior change should be factored into interventions. In addition, data needs to be collected on food safety risks to combat misinformation on social media.
- In terms of affordable diets, behavior change approaches need to include approaches to household budgeting. The financial aspect of healthy diets is not just related to money, but also to

time and labor restrictions, especially the role of gender and greater burden on women.

- Increase public investments in food science research because of the importance that consumers place on taste and consider cultural context. If food does not taste good, it does not matter how healthy or cheap it is, people will not consume it.

Role of Government

- Governments should focus on regulating harmful marketing. Governments should be empowered, resourced, and supported to implement policies that restrict what can be marketed.

- Focus more on the role of digital marketing, as the private sector can currently bypass many government controls and monitoring systems. Governments need access to the data that show what needs to be monitored, even if they can successfully pass marketing policies.
- Government mandates should be explored. We need both bottom-up and top-down interventions to address consumer and government driven demand.
- Include regulations on placement of nutritional products.

Approach

- Given the complexity of the food system, explore all opportunities with multiple actors, actions, and platforms engaged. This is called double duty policy bundles (i.e. need to tax and need to subsidize). Create a comprehensive package of interventions that target multiple levels.
- Youth need to be part of the solution. Children are powerful household influencers, pressuring parents to purchase processed foods over traditional nutrient-dense foods and shifting the diets of families. Focus on interventions that can effectively change the food consumption behavior of children and foster lifelong healthy eating habits, such as school-based nutrition education, healthy school meals, parental involvement, and positive reinforcement.
- USAID could ramp up programming that improves access to finance and manages food safety controls for SMEs.
- One impediment to a demand creation activity is a food environment that is not responsive to demand creation. That's where connections can be made. Address infrastructure and affordability.

- Consider the out-of-home environment that is critical to improving household diets (i.e. street vendors). Moving toward incentivizing healthy outlets is key.
- There needs to be a greater focus on hygiene practices and sanitation (WASH). Consumers assume that if it is packed, it is healthy.
- Addressing comprehensive water security could potentially influence food choices and improve dietary diversity. How does water security, beyond WASH, impact consumer demand? Water is essential not only for safe drinking and hygiene, but also for cooking, food preparation, and cleaning. Inadequate water access can limit the ability to prepare nutritious meals and increase women's workload, affecting household nutrition and food safety.
- A gendered view of what enables food preparation within homes would help us deepen understanding of drivers of dietary choice and of relevant actions that could actively influence those drivers.
- Expand the players within the movement toward a healthy diet, i.e. famous chefs.

Economy

- Acknowledge the power and sensitivities of commercial marketing of non-nutritious foods, particularly by companies in the United States, and its global impact on consumer demand.
- Perhaps there must be a competitiveness of supply to drive the price down and make a product affordable, especially locally made products.
- Market affordability is important and needs to align with demand creation.

Localization, Country Context

- To make a significant impact, interventions need to look at local market analytics and reach out to communities. Get a model that works at a smaller level of community, then scale. USAID should work more directly with local government partners.
- USAID needs to look at the local level, take a multisectoral approach, and bring in WASH, health, and agriculture.
- There is a huge informal sector in Feed the Future priority countries. Interventions like labeling and taxation will not necessarily reach everyone in these countries.
- We must focus on the 500 million smallholder producers in developing countries who only consume what is produced, which is not always healthy. Smallholders are also in need of safe, nutritious diets. We are ignoring a large segment of humanity if we do not address them.

Breakout Group 2: Private Sector Role

Overall Environment

- There are more tools available to decrease the consumption of non-nutritious foods than there are tools to increase the consumption of nutritious foods.
- We are working against the tide.
- SMEs play a crucial role.

USAID investment can help offset high costs of packaging and distribution to enable individual companies to increase production and sale of nutritious foods.

Evidence Base

- There is a lack of evidence on the marketing side.
- We need evidence on building market chains and lessons learned seen through the lens of feasibility and practicality.

Other areas that would benefit from investment by USAID, as it is not economically feasible for individual companies to take on:

Specific Market-Based Approaches USAID Could Support

- Retail level: support in-store displays.
- Support promotional campaigns for nutritious foods (there are not billboards for leafy greens).
- Support food vouchers.
- Support product labeling (see work of ATNI and GAIN; Health Star rating).
- Consumer research on product appeal, including looking at the convenience factor.
- Packaging is too expensive for individual companies to take on for their own products, especially for products that go to rural areas where food stability and food safety are real issues. Packaging can add up to 50 percent of overall costs. USAID should look at how to make packaging cheaper and locally made.
- Distribution costs are a huge driver of costs in rural areas. USAID should look at how to reduce distribution costs, such as through hub models

ANNEX 3: THE NOURISHING FRAMEWORK

Type	Intervention Area *	Examples
Environmental interventions		
Labeling interventions	Nutrition label standards and regulations on the use of claims and implied claims on foods	Nutrient lists on food packages, front-of-package traffic-light-labeling, shelf and menu board calorie labels
Nutrition standards in public institutions	Offer healthy foods and set standards in public institutions and other specific settings	School nutrition policies, nutrition standards in health facilities
Economic tools	Use economic tools to address food affordability and purchase incentives	Targeted subsidies, price promotions at point of sale, health-related food taxes
Advertisement regulation	Restrict food advertising and other forms of commercial promotion	Restrictions on advertising to children that promotes unhealthy diets
Whole food supply interventions	Improve the nutritional quality of the whole food supply	Reformulation to reduce sugar content and energy density of processed foods, portion size limits
Retail and food service interventions	Set incentives and rules to create a healthy retail and food service environment	Incentives for shops to locate in underserved areas, planning restrictions on food outlets, in-store promotions
Action across sectors	Harness the food supply chain and actions across sectors to ensure coherence with health	Health-in-all policies, governance structures for multi-sectoral engagement
Behavioral interventions		
Awareness raising interventions	Inform people about food and nutrition through public awareness	Dissemination of dietary guidelines, public information campaigns
Counseling interventions	Nutrition advice and counseling in healthcare settings	Nutrition advice for at-risk individuals, guidelines for health professionals on nutrition interventions
Skill-building interventions	Give nutrition education and skills	Cooking skills on education curricula, health literacy programs
<i>*wording used in the NOURISHING framework</i>		

