



RESEARCH
PROGRAM ON
Agriculture for
Nutrition
and Health

Led by IFPRI

Inclusive Food System Transformations for Healthy Diets

National Experiences
with a Global Challenge



OVERVIEW OF PROGRAM

The CGIAR Research Program on Agriculture for Nutrition and Health (A4NH) is dedicated to the realization of Sustainable Development Goals 2 and 3, as coordinated by the United Nations and agreed to by member countries. These goals include objectives to: end hunger, achieve food security and improved nutrition, promote sustainable agriculture, ensure healthy lives, and promote well-being for all at all ages.

A4NH's systemic approach to food systems research emphasizes healthier diets. While keeping in mind the relationships among different system components, and how a change in one component influences other outcomes, the program focuses on consumer demand for certain types of diets, how these deviate from recommended healthy diets, and what influences the choices people make about their diets. This is unusual in food systems research to date, yet essential to understanding the circumstances driving dietary transitions in what people eat and how they access that food—circumstances that are also shaping demand for what is grown, how it is transported, safety considerations, packaging, marketing, and more.

To achieve this mission, A4NH's research flagship Food Systems for Healthier Diets (FSHD) engages with national partners in four countries—Bangladesh, Ethiopia, Nigeria, and Viet Nam—to support their national policies and actions for food system transformation. Joint research spans in-depth studies of food systems and how they are transforming, development and testing of innovations and interventions, and working to anchor food systems approaches within existing national policy and program processes. A4NH contributes to scaling-up of interventions that can enable transformation to provide targeted populations with nutritious, safe, and diverse diets in a sustainable and equitable

way. Partner engagement in each country is unique, anchored through a key research partner (Viet Nam, Ethiopia) or through a network approach (Bangladesh, Nigeria). While adapting to the local policy situation, we also look for common lessons that can be applied by other countries.

A4NH starts with diets as an entry point to inform research on national food systems using frameworks to look at the drivers and components of these systems, and works with stakeholders to develop and implement promising actions to increase inclusion and improve diets and related nutrition and health outcomes in a sustainable way. Approaches to food system transformation by design are influenced by national policies and strategies. At the country level, stakeholders and research teams are making efforts to drill down to subnational systems or out to regional and global influences to address the multiple outcomes of national food systems. Critical issues arise in identifying opportunities for improving nutrition and health, livelihoods and sustainability, and the inevitable trade-offs that arise. This has important implications for how to ensure inclusion at different stages of transformation, how to balance and link growing cities with rural development, and how to enable and regulate private sector actions for the evolving food and consumer environments. From a diet perspective, researchers are able to work in concert with a host of other food system actors and stakeholders to ensure synergistic efforts that can make healthy diets accessible to all, with no one left behind.

This brief, a companion to "[National Food Systems: Inclusive Transformation for Healthier Diets](#)," Chapter 6 in the International Food Policy Research Institute's *2020 Global Food Policy Report: Building Inclusive Food Systems*, offers a deeper dive into A4NH's food systems research in its focus countries to date.



LEARN MORE

Food systems in low- and middle-income countries are changing rapidly, with serious consequences for the nutritional health and well-being of billions of people. A4NH's Research Flagship on Food Systems for Healthier Diets announces the **Food Systems Resource Center**, providing research, tools, and ideas to development practitioners, entrepreneurs, and policymakers working in this important area.

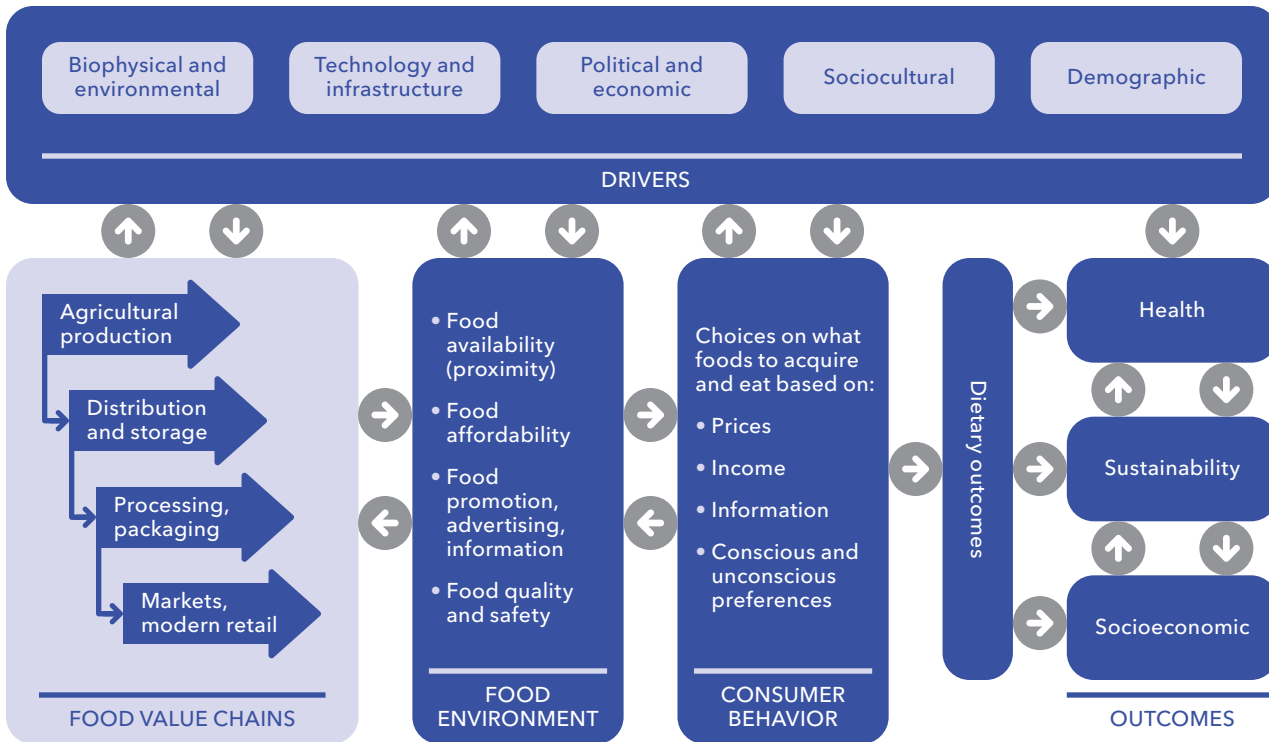
Visit bit.ly/A4NHFSRC to learn more.



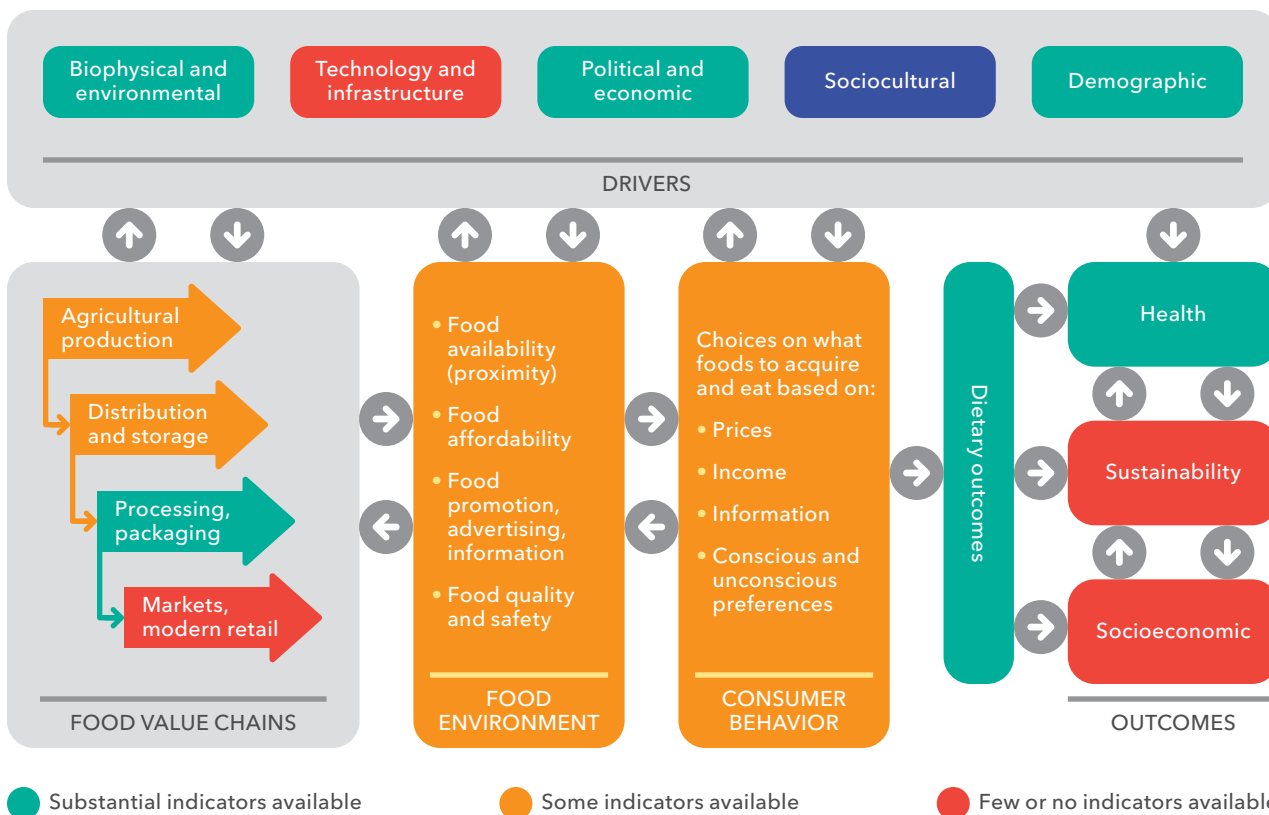
JOIN THE CONVERSATION

With so many people working on different aspects of food systems at all levels, all over the world, there is no shortage of good ideas and interesting points for discussion. A4NH announces the **Food System Idea Exchange**, where different voices can come together to explore the many issues around food system transformation.

Visit bit.ly/FSIEblog for recent posts and submission information.



A4NH uses this simplified version of the High-Level Panel of Experts graphic on food systems to organize its research.



FOOD SYSTEM CHALLENGES:

Less than half a century ago, soon after independence, Bangladesh was experiencing famine. Today, with strong direction from the government in developing agricultural production, not only has the country achieved grain self-sufficiency, but also diets have begun to diversify, with increases particularly in consumption of animal-sourced foods. Yet with this improvement comes a number of challenges:

- **DIET DIVERSITY AND QUALITY:** Bangladesh is moving from focusing on food security to focusing on diet diversity and meeting micronutrient requirements. However, progress has been uneven. Dietary diversity is still low, with insufficient intake of almost all nutritious foods, such as fish, pulses, vegetables, fruits, milk, and eggs. Disparity in diets prevails—diets are becoming more diverse among the well-off, but improving more slowly for the poor. Eating away from home at roadside vendors and restaurants is increasing at the national level, and particularly in urban areas.
- **ADDRESSING MALNUTRITION IN ALL ITS FORMS:** Undernutrition remains a problem in Bangladesh, and stunting levels

among children remain stubbornly high, with approximately a third of children impacted, and high levels of micronutrient deficiencies persist, particularly in rural areas (Bangladesh Demographic and Household Survey, 2017). At the other end of the spectrum, rates of overweight and obesity are rising, with nearly 15 percent of Bangladeshi children in urban areas now overweight or obese (Bulbul and Hoque, 2014).

- **AFFORDABILITY:** The cost of the EAT-Lancet diet in Bangladesh is US\$2.47 per person per day (2011 PPP). This renders it unaffordable for approximately 40 percent of the population (Hirvonen et al. 2020).
- **ENVIRONMENTAL SUSTAINABILITY:** According to the Global Climate Risk Index, Bangladesh is the most climate-change-vulnerable country in the world (Harmeling, 2011), facing risks of sea-level rise, greater soil salinity, increasing frequency of severe weather events, and more. The country is still heavily dependent on agricultural production, and climate risks must be addressed to ensure resilience throughout the food system.

To ensure that the food system transformation in Bangladesh moves diets toward healthy outcomes, in 2017, the government released a multisectoral [Country Investment Plan](#) to address hunger and malnutrition. Developed in coordination with partners including the U.S. Agency for International Development and the European Union, the plan targets five areas for investment and development throughout the food system:

- Diversified and sustainable agriculture, fisheries, and livestock for healthy diets.
- Efficient and nutrition-sensitive postharvest transformation and value addition.
- Improved dietary diversity, consumption, and utilization.
- Enhanced access to social protection, safety nets, and increased resilience.
- Strengthened enabling environment and cross-cutting programs for achieving food and nutrition security.

Research and development priorities: Working with national-level and other development partners, [A4NH conducted an analysis that served as the foundation for the development of a research agenda on food systems for healthier diets in Bangladesh](#). From this work, priority research questions for food system transformation were identified, along with potential entry points for research. Priority areas include:

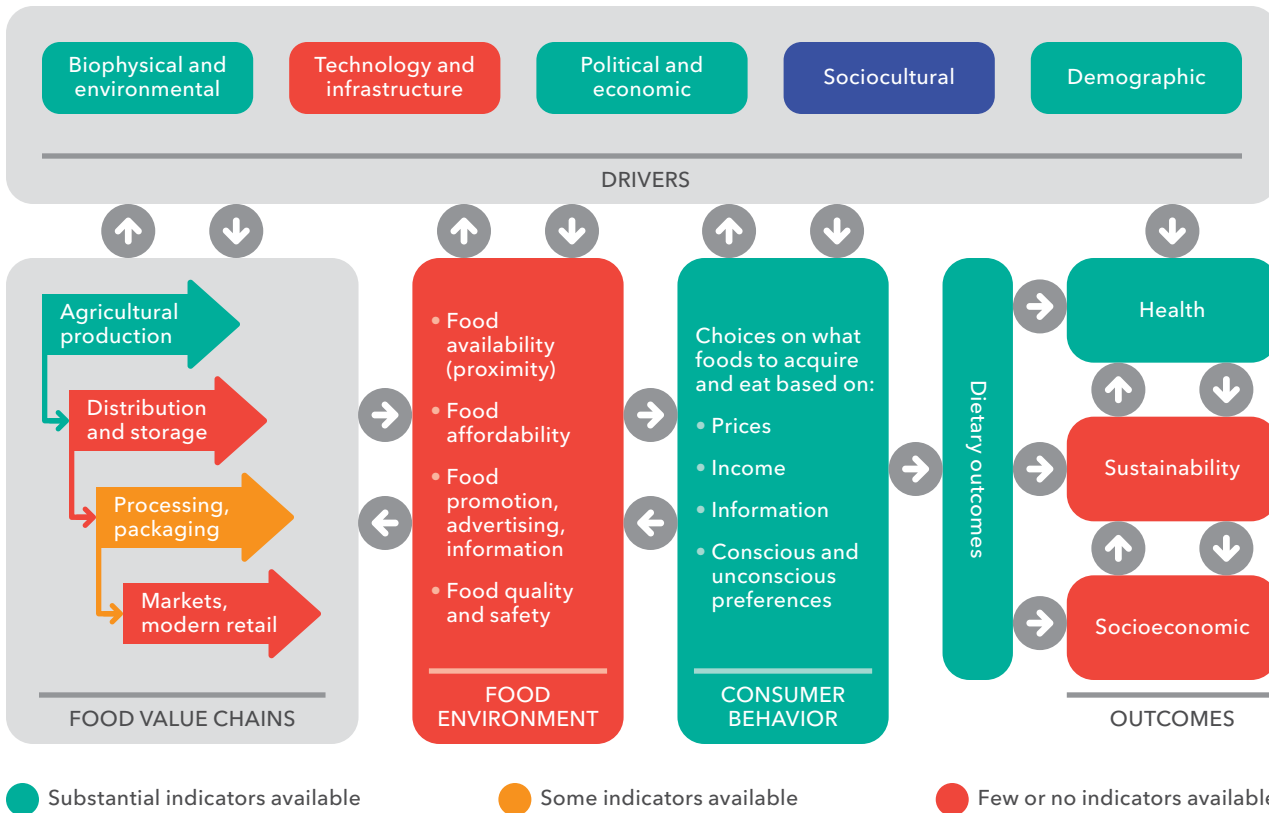
- Identifying strategies to make nutrient-dense foods more affordable for the poor.
- Understanding the role of the food environment in Bangladesh, from how it is affected by policy to how people in different demographic and socioeconomic groups interact with it.

- Identifying which components of food systems—production systems, the food environment, or consumer behavior—to target for additional innovations in order to have the largest impact on diets without major adverse trade-offs related to the economy or environment.

For further reading on actions and areas of progress:

- [A food systems policy baseline survey](#) based on field research to assess the food and nutrition situation in Bangladesh, designed to identify data, policy gaps, and opportunities for interventions and actions to improve diets nationwide.
- Explorations of the role of [trust in food systems](#), including the trust relationship between input dealers and farmers when using technology and impacts on productivity outcomes.
- [Cross-disciplinary work to understand](#) how consumer behavior, the rural economy, agricultural production, logistics, and spatial planning and the environment interact with one another in the Dhaka food system, and to identify integrated solutions for ensuring all consumers have sustainable access to a healthy diet.
- Considering the relationship between urban adolescents and the food environment, and the role of fish in improving diets, in collaboration with WorldFish.
- Collaboration with the SUN Business Network through Global Action for Improved Nutrition (GAIN) to [anchor innovations](#) in food systems policy to promote healthy diets.
- Work with icddr'b to build capacity of master's level students from local universities as they pursue studies of the urban food environment, including training, field work support, and financial assistance.





FOOD SYSTEM CHALLENGES:

Ethiopia has a rich policy environment, including food-systems-related policies and strategies. Yet at the national level, there is a need to take a deliberate, holistic approach to food systems, and A4NH researchers are working with policymakers and other stakeholders to develop a research and policy program that centers on diets. Through policies such as the Seqota declaration, a government commitment to accelerate progress on nutrition that set the ambitious goal of ending undernutrition in the country by 2030, as well as the [New National Nutrition Program-II](#), the [Agricultural Growth Program](#), and the nutrition-sensitive agriculture strategy, Ethiopia seeks to leverage agriculture to improve nutrition and use food system transformation as a key pillar of economic development. Policymakers recognize that, given the food system’s potential to improve employment, income, and economic growth, it is important to ensure that the food system transforms in a way that improves nutrition and health outcomes. Key challenges that must be addressed include:

- **IMPROVING DIETARY DIVERSITY:** [Recent A4NH research](#) into dietary imbalances, where people purchase food, and

why they make purchases revealed large dietary imbalances, with insufficient consumption of fruits and vegetables and rising consumption of ultra-processed foods as incomes increase. [A second survey](#), which looked at consumption patterns in greater detail, found that nutritious foods, including fruits, vitamin A-rich vegetables, and animal-sourced foods were all lacking from diets. A4NH researchers are working to identify innovative ways to address these challenges, including developing tools such as a video that will be aired in Addis Ababa that explains the importance of consuming fruits and vegetables.

- **ENSURING NO ONE IS LEFT BEHIND:** The cost of the EAT-Lancet diet in Ethiopia is US\$2.70 per person per day (2011 PPP). This renders it unaffordable for more than 60 percent of the population (Hirvonen et al. 2020). Moreover, while some regions of the country are more at risk for different forms of malnutrition than others, nutrition challenges occur nationwide. The government has responded to the need for wider policy attention as it expands the Seqota declaration from its initial target of limited woredas in

the Tekezi Basin to other parts of the country. A balance must be achieved between providing social protection programs for those most in need and strengthening links between urban and rural areas to ensure access to diverse foods and markets.

- **UNDERSTANDING THE FOOD ENVIRONMENT:** The food environment, or where the consumer interacts with the food they will consume, makes up an important part of the food system, yet little is known about Ethiopia's. A4NH researchers recently have studied adolescents and their food environment, including how cost, packaging, and convenience impact decision-making about what food to consume. This work is helping to begin to fill in knowledge gaps and identify areas for interventions.

Research and development priorities: Working with national-level and other development partners, [A4NH conducted an analysis that served as the foundation for the development of a research agenda on food systems for healthier diets in Ethiopia](#). From this work, 25 priority research questions for food systems transformation were identified, along with potential entry points for research.

Priority areas identified include:

- Defining a healthy diet through establishing food-based dietary guidelines (FBDG), which are projected to be released in 2020.
- Anchoring a food systems perspective into the national policy environment and flagship programs, beginning with establishing a [food systems policy baseline](#)

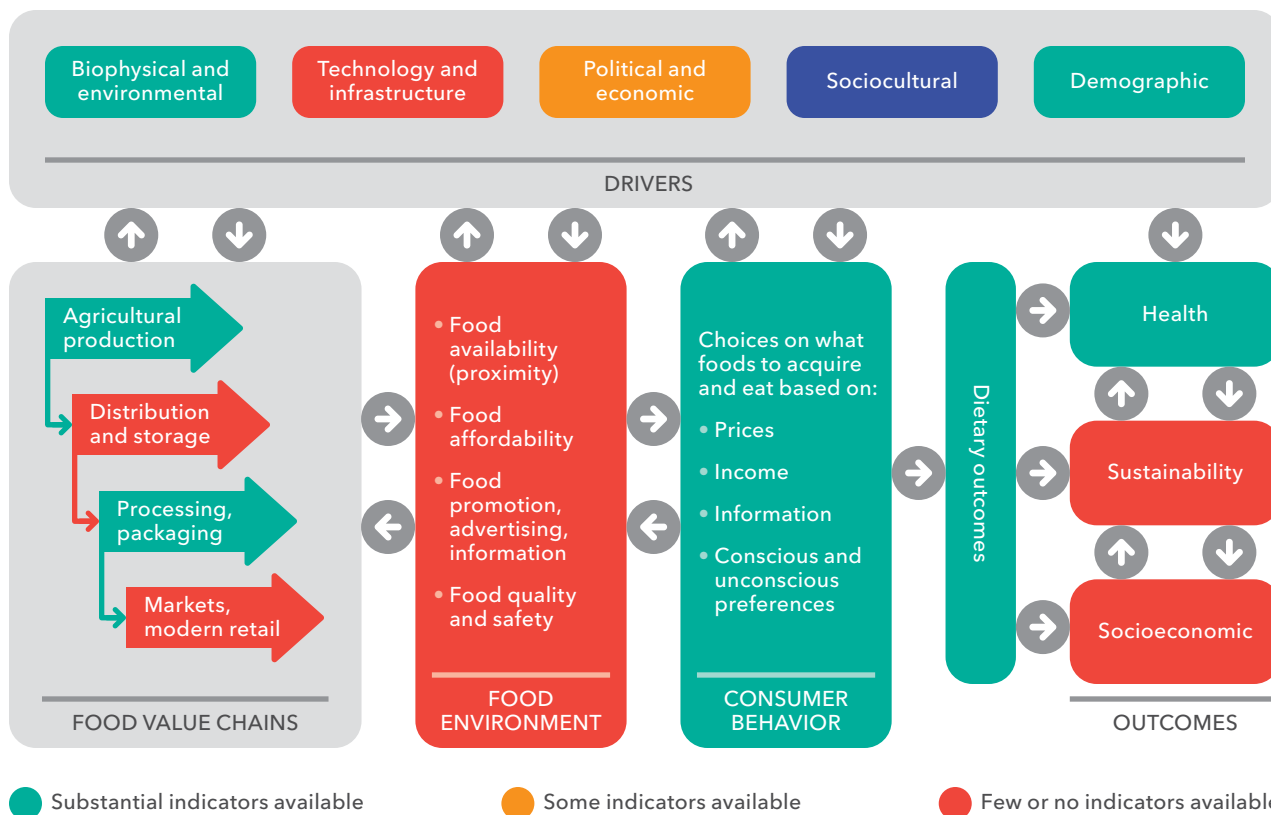
and then moving to mapping the flow of food and identifying gaps in programs.

- Diversifying agriculture and identifying interventions to encourage farming of crops beyond staples, to include vegetables, pulses, and animal-sourced foods, as well as further intensification of cereal production.
- Understanding the food environment, including how more diverse options in the market impact the quality of the diet, as more healthy and unhealthy options become available to more and more people.

For further reading on actions and areas of progress:

- Development of FBDG, including [a workshop](#) and [development of methodology](#), as well as technical guidelines and public messages now in development.
- Building capacity through partnering with local universities to provide financial and technical support to [master's level students](#) working to pursue careers in food systems.
- Understanding [household food consumption in Addis Ababa](#) and [urban consumers' food choices](#), and developing tools, including a video, to help consumers understand the importance of foods such as fruits and vegetables.





FOOD SYSTEM CHALLENGES:

Nigeria's food systems are complicated and evolving, shaped by increasing demand from consumers in growing cities and new challenges such as navigating longer supply chains to deliver affordable, nutritious food to markets. Nigeria is off-track to achieve its health, nutrition, and food security targets for 2025 and 2030. Transformation of its food systems forms a key part of the solution to these challenges. A4NH researchers are working with policymakers from across the state and federal governments, as well as members of the private sector and other stakeholders, to understand the food system as a whole, including the policy environment, what drives consumer choice, how nutrition and consumer diets develop over time across regions and socioeconomic strata, and where opportunities might exist for effective policy interventions. Challenges they have identified include:

- **MALNUTRITION IN ALL ITS FORMS:** All forms of malnutrition are widespread in Nigeria. Of particular concern are high rates of chronic malnutrition among children, largely as a result of poor food, health, and care practices, but also rising rates

of overweight and obesity and related noncommunicable diseases among adults.

- **DIET DIVERSITY:** While diets in Nigeria are changing, dietary diversity remains low. In 2018, only one in five children aged 6 to 23 months ate from the recommended five or more food groups and only half of women aged 15 to 49 met the recommended minimum dietary diversity of at least 5 out of 10 food groups (Nigeria Demographic and Health Survey, 2019), though rates were better in urban than rural areas. Consumption of nutritious foods such as fruits, vegetables, and animal-sourced foods is, for most people, below what is recommended.
- **AFFORDABILITY OF HEALTHY DIETS:** The cost of the EAT-Lancet diet in Nigeria is US\$2.84 per person per day (2011 PPP). This renders it unaffordable for 73 percent of the population (Hirvonen et al. 2020).
- **URBANIZATION:** More than half of Nigeria's rapidly growing population depends on urban food systems, which have their own unique challenges. The urban poor, for example,

are more dependent on purchasing food and tend to consume more processed foods and to eat away from home (de Brauw and Herskowitz 2018).

- **INCREASING DOMESTIC PRODUCTION:** While the domestic supply of staple foods has expanded over the past two decades, legumes and traditional grains lag at the expense of root crops and modern cereals. The domestic supply of meat, milk, and fish is growing, but not enough to curb rising imports, while the domestic fruit and vegetable supply has remained stagnant at low levels.

Nigeria is addressing these challenges through the [Agricultural Sector Food Security and Nutrition Strategy](#) and the [Agriculture Promotion Policy 2016–2020](#); however, data and knowledge gaps hinder implementation of nutrition-sensitive agricultural policies.

Research and development priorities:

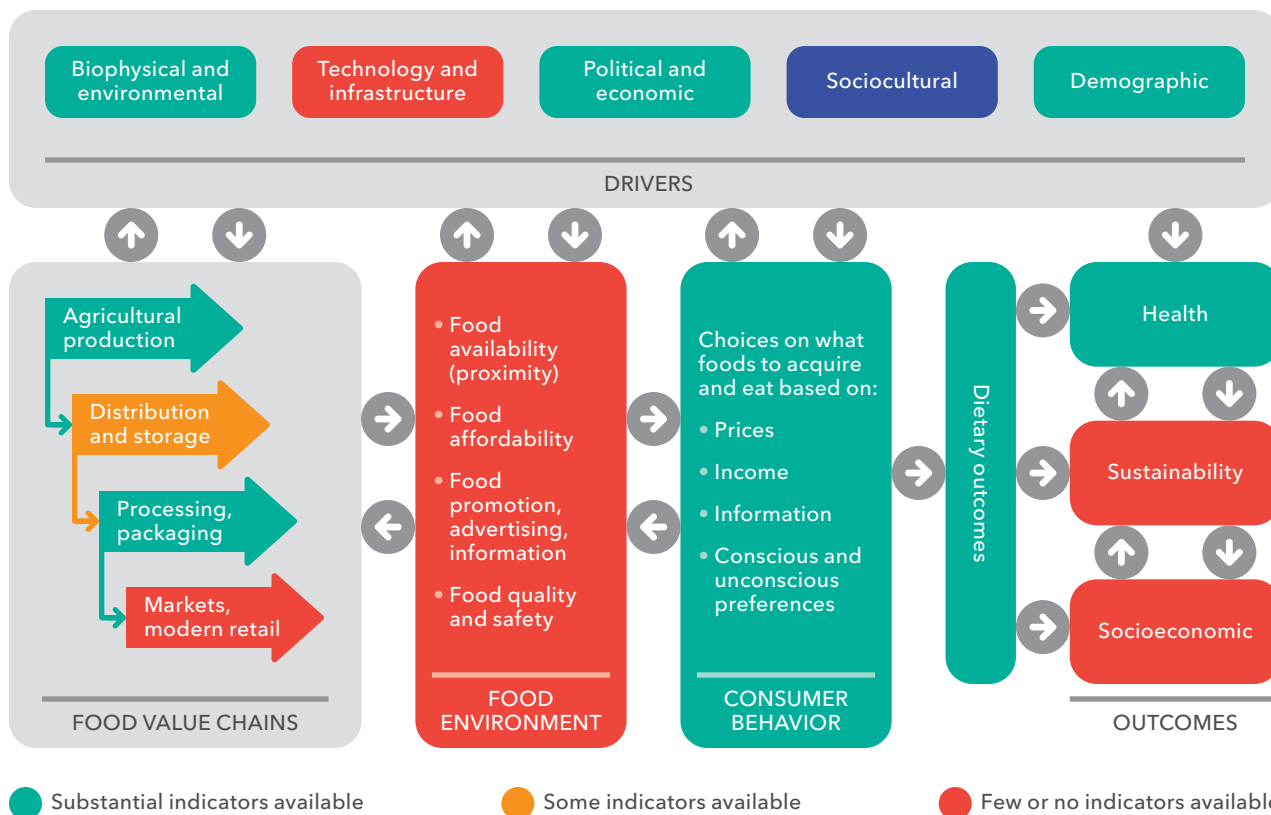
- Understanding how food systems drive changes in nutrition and consumer diets over time across regions and socioeconomic strata: Through its country lead partner, the International Institute of Tropical Agriculture, [A4NH is supporting the preparation](#) of a national food consumption and micronutrient survey that will provide a long-awaited authoritative picture of the state of diets and nutrition across all age groups and indicate key factors for tackling all forms of malnutrition in the country, such as hygiene environments and healthy diets.

- Identifying strategies for effective interventions in local food systems and value chains to support healthier diets, through work in the food environment to improve availability, access, and desirability of nutritious food.
- Building effective policy environments and capacity for the transformation of agriculture and food systems, including collaborating to support regional strengthening of value chains for animal-sourced foods, particularly fish and poultry.

For further reading on actions and areas of progress:

- Identifying ways to [reduce food loss and waste](#).
- [Understanding consumer behavior around fruit and vegetable consumption](#).
- Promoting [healthy diets and environmental sustainability](#).
- Understanding how [income variability impacts demand for processed foods](#).
- Developing innovative ways to deliver fresh [vegetables to urban consumers](#) and understand their diet choices.
- Exploring the unique [dynamics of urban food systems](#).
- Training on Food Systems for Healthier and Sustainable Diets.





FOOD SYSTEM CHALLENGES:

Driven by rapid rates of urbanization and rising incomes, Viet Nam is swiftly transitioning away from its long-standing status as an impoverished, agrarian society, to become a globally connected, educated, and economically stable nation. Yet nutrition outcomes for people, given current transitions in the food system, pose important challenges:

- DIET TRANSITION:** Vietnamese diets are changing quickly, bringing new dietary challenges alongside progress. The country has moved from a predominantly rice-based diet to a more balanced diet that includes animal-sourced foods, especially meat in urban areas. This more diverse diet also includes fruits and vegetables, as much as 80 percent of adults still do not consume the recommended amounts (Nguyen and Hoang 2018); milk consumption is also on the rise but below recommended amounts, while legume consumption remains low. Taken together, these trends mean many people remain micro-nutrient deficient. At the same time, people are eating more salt, sugar, and fat, with a rise in popularity and availability of highly processed foods, such as instant noodles

and sugar-sweetened beverages contributing to rising rates of overweight and obesity.

- FOOD SAFETY:** Though large disparities persist across ethnic groups and in different parts of the country, trends show consumers are growing more concerned about food safety, and shopping habits are beginning to change as supermarkets and convenience stores compete for customers with traditional informal wet markets. Policies and regulations exist, but capacity for monitoring and enforcement is lacking. The extensive use of agricultural inputs such as antibiotics, pesticides, and chemical fertilizers, as well as a lack of traceability, contributes to increasing food safety concerns for the population.
- ENVIRONMENTAL SUSTAINABILITY:** Agrobiodiversity in Viet Nam is low, with only five crops—rice, maize, rubber, coffee, and cassava—covering more than 75 percent of agricultural land (Vietnam General Statistical Office 2018a) accounting for one-third of the country's, albeit low, total greenhouse gas emissions. Pig production and aquaculture also have adverse environmental effects.

- **SOCIOECONOMIC AND WELFARE OUTCOMES:** Agriculture employs 38 percent of people, but this share is decreasing, while employment in food service facilities is still low at 5 percent, but rapidly increasing (Vietnam General Statistical Office 2018b). Healthy diets remain unaffordable for more than 11 percent of the population (Hirvonen et al. 2020). Rapid urbanization is putting pressure on the food supply and provisioning system.

In 2018, the Vietnamese government adopted the [National Action Plan for Zero Hunger in Viet Nam](#), which aims to reduce malnutrition in children under age two by 20 percent and reduce the proportion of children under age two who are underweight from malnutrition to less than 5 percent nationally by 2025.

Research and development priorities: A4NH food systems researchers are working with policymakers and stakeholders from national and international agencies on a wide range of topics and across different geographical areas to better understand Viet Nam’s changing food system, and how transformations can ensure healthy, sustainable diets are available to all. Priority research areas identified include:

- Identifying trade-offs and associations between agricultural production, health, environment, and economic outcomes.
- Working with the private sector to promote healthy diets.

- Exploring the potential for smallholder-oriented innovations in food distribution.
- Improving governance of Viet Nam’s food supply.
- Identifying how healthier food choices can lead to a healthier food supply.
- Identifying trade-offs among food safety, food waste, nutrition, and the environment.

For further reading on actions and areas of progress:

- [Determining Key Research Areas for Healthier Diets and Sustainable Food Systems in Viet Nam.](#)
- [Food System Policy Baseline Assessment.](#)
- [Increasing fruit and vegetable intake of low-income populations in Nigeria and Viet Nam through food systems interventions.](#)
- Increasing consumption of fruits and vegetables, including through the [Retail Diversity for Dietary Diversity project](#) and others.
- [Exploring the unique challenges of urban food systems](#) to ensure sustainable and nutritious diets for growing the growing urban population.
- [School-based interventions](#), including research on behavior change and whether lessons learned by children are passed on to parents.





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DOI: <https://doi.org/10.2499/p15738coll2.133680>

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