

# Food Environment Methods, Tools, and Metrics to Support Healthy Diets in Low- and Middle-Income Countries

Shauna Downs,<sup>1</sup> Teresa Warne,<sup>2</sup> Sarah McClung,<sup>3</sup> Noni Alexander,<sup>3</sup> Chris Vogliano<sup>3</sup>

<sup>1</sup>Rutgers University, NJ; <sup>2</sup>Montana State University, Bozeman, MT; <sup>3</sup>USAID Advancing Nutrition, Arlington, VA

## BACKGROUND

Food environments drive food purchase and consumption behaviors, affecting diets and nutrition. Evaluating food environment dimensions like food availability, price, vendor and product properties, and marketing and regulation helps us understand how they influence food choices. Despite the importance of this information in protecting against malnutrition, we lack a comprehensive package of food environment assessment tools designed or adapted for data collection in low- and middle-income country (LMIC) contexts.<sup>1</sup> USAID Advancing Nutrition conducted research to test food environment assessments in four LMICs. Findings will equip practitioners with refined and pilot-tested data collection tools to inform the design and implementation of market-based interventions within food systems to support healthy diets.



Photo credit: Ipsos Nigeria Limited

## FINDINGS

### Assessment Implementation

- Results demonstrate suitable application of most assessments, even in challenging contexts. More complex assessments (e.g., the Healthy Eating Index) may not be suitable across contexts and researchers can replace them with a simpler validated assessment like the seasonal calendar tool to gather data on nutritious food availability.

- We made several modifications throughout the piloting process to strengthen the implementation of the tools, including: a recommended order for completing assignments, using local measurements, and defining community boundaries with guidance from key informants. These modifications enhanced implementation suitability.

- Qualitative data from implementing research firms showed that some assessments will require revising the instructional language for clarity and simplification.

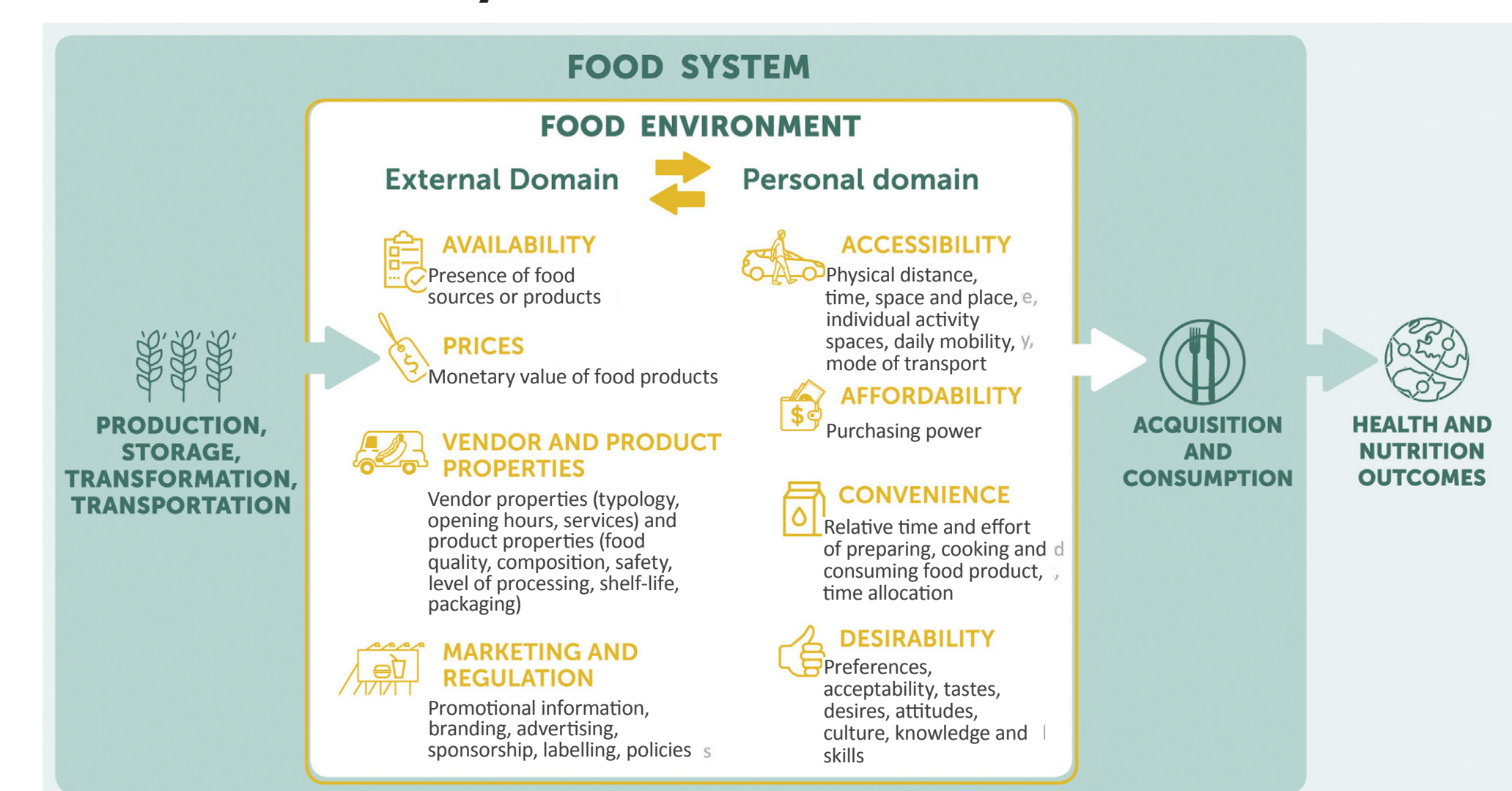
- Based on lessons learned during the Liberia and Honduras pilots, we added social participatory mapping as a formative step to identify markets frequented by populations of interest in Nigeria and Timor-Leste.

- In Honduras, we discovered that the COVID-19 pandemic and associated economic challenges shifted traditional open-air markets to a combination of open air and other food environments.

### Areas for Further Exploration

- Assessing consumer demand and preferences requires additional assessment options.
- We did not design the assessment package to assess natural food environments, or wild and cultivated environments (i.e., open pastures, aquaculture, gardens, forests and jungles).

**Figure 1. Situating the Food Environment within the Food System**



Source: Turner et al. 2018<sup>2</sup>

## THE WAY FORWARD

Development partners can use these assessments to inform high quality, locally relevant market-based food systems activities to support improved diets for local populations. This research and resulting assessment package will enable a more comprehensive understanding of market food environments in LMICs to support food systems policy and programming approaches to improve the affordability, availability, and desirability of safe, nutritious food.

## KEY TAKE-AWAY

**The food environment assessments package can inform market-based food systems interventions to improve diets.**

**Table 1. Assessment Questions**

Assessment	Primary Question Answered
1. Market Mapping*	What foods are vendors selling in each market, and what types of food environments exist around the market?
2. Seasonal Calendar of Availability	Which foods (species) are available in each market throughout the year?
3. Market Diversity Index*	Which food groups are represented and/or missing at each market?
4. Healthy Eating Index of Food Supply *	Are sufficient quantities of each food group available to meet recommended intakes?
5. Cost of a Healthy Diet*	What does it cost to meet dietary recommendations?
6. Environmental Profile of a Community's Health	How prevalent are food advertisements and what types of foods are they promoting?
7. Produce Desirability Tool	Are select fruits and vegetables for sale in the markets high quality and appealing to consumers?

\*Adapted for use in LMICs

## METHODS

USAID Advancing Nutrition identified a set of seven existing food environment assessments most suitable to test in LMIC contexts. We selected methods, tools, and metrics (assessments) based on factors including ease of implementation, adaptability, face validity, and ability to gather data from both the external and personal domains of food environments. Together, the assessments capture data on key food environment dimensions of accessibility, availability, price, product and vendor properties, affordability, marketing and regulation, and desirability. Our research team conducted pilots in Liberia (September–December 2021), Honduras (June–August 2022), Nigeria (October–December 2022), and Timor-Leste (January–March 2023). We collected data using each assessment on dimensions of market-based food environments, and documented enumerator experience using the assessments. Based on learnings from the pilot study, USAID Advancing Nutrition is finalizing the assessment package and guidance for potential users.

<https://www.anh-academy.org/academy-week/2023>  
#ANH2023

<sup>1</sup>Turner, C. A. Aggarwal, H. Walls, A. Herforth, A. Drewnowski, J. Coates, S. Kalamatianou, et al. 2018. "Concepts and Critical Perspectives for Food Environment Research: A Global Framework with Implications for Action in Low- and Middle-Income Countries." *Global Food Security*, 18: 93–101. <https://doi.org/10.1016/j.gfs.2018.08.003>.