CGIAR FOOD FRONTIERS AND SECURITY

The Urban Food Environments and Diets (UFED) Tool

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The UFED Tool: Linking Diet and Food Environment Methods and Metrics

How do urban food environments shape diets and nutritional status? The UFED tool offers guidance on suggested methods, indicators, and practical tips for assessing diets and food environments in urban and peri-urban settings, many of which may also be relevant for rural contexts.

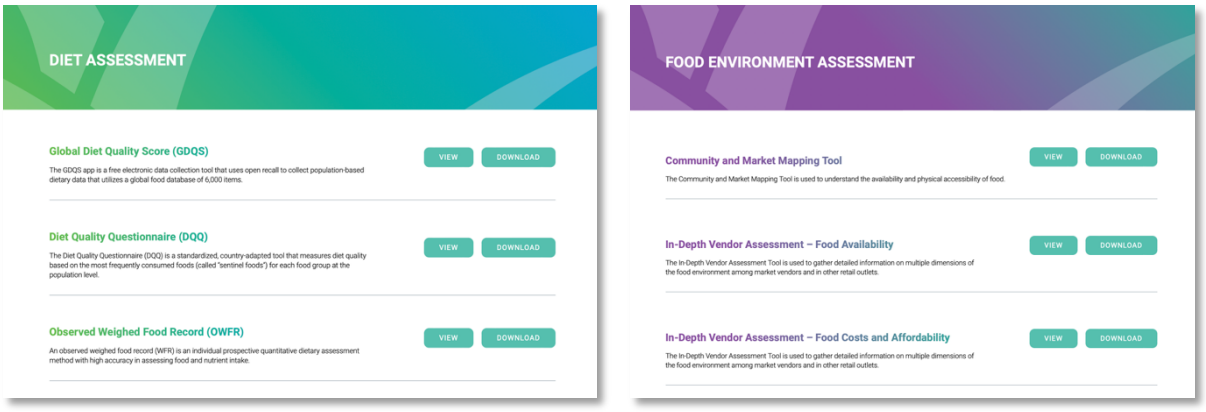
UFED: A tool for decision-making

With over half of the world's population living in urban areas and urbanization growing fastest in Africa and Asia, where levels of malnutrition are highest, improving diets in urban areas is a global health priority (Popkin et al., 2020; UN Population Division, 2026). Food environments may pose distinct challenges for access to healthy diets in urban contexts by influencing what foods are available, affordable, convenient, and desirable, especially to different socioeconomic groups (Vilar-Compte et al., 2021). However, data to characterize the diets of urban populations and the food environments they are exposed to are scarce, limiting the potential to design and implement evidence-based policies and programs.

Over the past decade, important advancements have been made in dietary and food environment assessment. New tools and metrics—such as the Global Diet Quality Score (GDQS), the Diet Quality Questionnaire (DQQ), and the Food Environments Toolkit—have expanded the options for exploring diets and food environments and identifying where they fall short. At the same time, the growing number of assessment options has increased the complexity of selecting appropriate methods and applying them effectively.

The **Urban Food Environments and Diets (UFED)** tool is an online resource designed to address this challenge by supporting policymakers, practitioners, and researchers in identifying optimal approaches for assessing diets and food environments in urban and peri-urban contexts. UFED features an inventory of guidance documents on dietary and food environment assessment tools **(Figure 1)**, alongside an interactive decision tree that matches users with suggested assessment packages based on their objectives, needs, and available resources (**Figure 2**).

Figure 1. UFED inventory



Guidance documents

Each guidance document in the UFED inventory provides a description of the assessment tool, including the type of data it collects and indicators it can generate, as well as recommendations for adapting it according to different resource levels. See **Table 1** for a comprehensive list of topics covered.

Table 1. Key sections of the UFED guidance documents:

➢ **Introductions to recommended tools** for each diet and food environment assessment and the basic rationale for conducting this type of assessment.
➢ **Overview of data**: helps users understand the type of data generated from the tool and in some cases, identifies secondary data sources that may be needed to facilitate analysis.
➢ **Priority indicators:** lists indicators that can be calculated from the data, describes their basic calculation, and notes any relevant limitations of the indicators.
➢ **Pros and cons:** weighs advantages and disadvantages of each tool in comparison with alternative tools and with respect to overall resource and time requirements.
➢ **Adaptation strategies**: includes suggestions for tailoring the tool to different resource levels, geographic areas, and institutional settings (e.g., school feeding programs).
➢ **Sampling and implementation advice:** provides practical tips on sampling strategies, fieldwork planning, and integrating tools into existing surveys to reduce data collection costs and improve efficiency.
➢ **Validity and reliability information**: summarizes evidence from validation studies to help users assess the credibility and applicability of the tool in their own work.
➢ **Comparison of data sources:** reviews secondary data sources that can be accessed for similar analysis, outlining their strengths, limitations, and relevant indicators.
➢ **Illustrative research examples:** highlights real-world applications of tools and indicators in urban and peri-urban contexts of low- and middle-income countries to demonstrate utility in policy, program design, and monitoring.
➢ **Access to additional resources:** points users to external tools, databases, and publications for further support in implementing dietary and food environment assessment methods.

Decision tree

In addition to the inventory, UFED includes an interactive decision tree that matches users with suggested assessment tools based on their objectives and needs. The decision tree guides users through a series of diet- and food environment-related questions about the objectives and context of their assessment, such as the following (also seen in **Figure 2**):

- What diet-related problems are you concerned about?
- What target group would you like to assess?
- Do you plan to use data from food composition tables (FCT) in your analysis?
- How specific of a measure would you like?

Later questions allow users to specify whether they are interested in longer-term intake (over a year or month, rather than a day) and whether they will carry the assessment out in a controlled, clinical environment, or over the phone. The food environment questions, which can be completed before or after the diet questions, ask the user to specify the type of food environment their target group engages with, types of food they would like to assess, and the nature of the food environment problem (e.g. accessibility, availability, cost and affordability, or marketing and advertising).

Figure 2. Diet decision tree process from the UFED website

Throughout the decision tree process, UFED adapts its questions based on user input to ensure relevance and feasibility, while also displaying explanatory information bubbles for each question to help inform choices. Users are prompted to revise their choices when their stated objectives, context, and/or needs are incompatible or prevent identification of an optimal assessment package. For example, this could occur when users want to attain highly specific nutrient intake data, but due to time or resource constraints, need to use 'off-the-shelf' assessment tools that do not capture nutrient quantities.

Together, the inventory and decision tree help users consider the advantages and disadvantages of different tools, the indicators each can generate, and the type of analysis and evidence that would be most relevant for informing their program or policy decisions. All guidance documents are available through the online UFED inventory, which can also be accessed directly, without use of the decision tree process.

Fit for purpose assessments in urban and peri-urban contexts

Specific considerations for planning and conducting assessments in urban contexts are detailed in a supplemental *Urban Considerations* resource, also available in the UFED inventory. This covers topics such as sampling of urban communities, participatory mapping of food environments, data collection in slums and informal settlements, and identification and classification of ultra-processed foods and food consumed away from home. The *Urban Considerations* resource also provides a set of recommendations for improving linkages between dietary and food environment assessments, starting at the planning and design stages.

As noted in **Table 1**, within the guidance document for each tool, UFED highlights illustrative examples of research conducted in urban contexts so users can see how other researchers have adapted tools and approaches to specific urban contexts, while also getting a sense for the type of evidence that was generated from those studies. Weighing the relevance of different evidence types can be useful as users iterate on the research questions they would like their own diet and food environment assessments to address.

Although designed for urban contexts, UFED can also be used to consider diet and food environment assessments for rural areas, which are facing many similar diet- and food environment-related challenges. An overarching theme of UFED is the importance of examining assumptions about urban areas and avoiding the over-simplification of rural-urban dichotomies. Urban areas, while often associated with a stylized profile of overweight and obesity, may face serious challenges of food insecurity and undernutrition, which are commonly associated with rural areas, especially among low-income households (Assaf & Juan, 2020; Nguyen et al., 2021). Meanwhile, many rural areas are experiencing increased penetration of ultra-processed foods and desire for convenience—features that are typically associated with urban food environments (FAO et al., 2023). Through the guidance documents and decision tree process, UFED encourages users to consider diet quality broadly, focusing both on problems related to overconsumption of unhealthy foods and underconsumption of healthy foods, rather than assuming that all diet problems in urban areas are related to unhealthy foods.

Why is UFED needed?

As urbanization continues to accelerate and the malnutrition burden grows in urban areas, expanding the evidence base on diets and food environments in urban settings is critical. However, more guidance is needed on how to select, combine, and apply different assessment approaches effectively. UFED aims to fill this need, while also sharing insights into the tradeoffs, advantages, and disadvantages of different tools.

Identifying the dietary risk factors behind malnutrition in its various forms is essential for evidence-informed responses. Although urbanization is typically associated with more diverse diets, it is also linked to increased consumption of ultra-processed and convenience foods, as well as higher intake of saturated fats (Miller et al., 2022). More detailed dietary data are needed to better understand dietary patterns, overall diet quality, and nutrient adequacy among urban populations. This is especially important for vulnerable sub-groups that are often missed in assessments, such as residents of slums and informal settlements, where levels of food insecurity, poverty, and poor living conditions are disproportionately high (HLPE, 2024). Low-income urban consumers, who rely on food purchasing more than rural consumers, are particularly vulnerable to the higher cost of healthy foods and price shocks (Brinkman et al., 2010; Headey & Ruel, 2023).

Urban food environments could play an important role in explaining diet inequities, but evidence to characterize specific exposures and test associations with diet and health outcomes is still limited (Carducci et al., 2021; Turner et al., 2020; Westbury et al., 2021). Common concerns include the high availability and promotion of unhealthy foods, the high cost of healthy foods, and food safety risks, though context-specific data are not always available across different dimensions, and for some factors—like convenience and desirability—assessment tools are still being developed (Ahmed et al., 2021; HLPE, 2024). Additionally, there are few published evaluations of interventions that can effectively improve food environments or food choices (Blake et al., 2021; Roy et al., 2023; Westbury et al., 2021). Governments and stakeholders in low- and middle-income countries, often operating with limited resources, seek practical tools to generate and analyze high-quality, contextualized data that will help understand these dynamics.

The UFED tool can help NGOs, policymakers, researchers, and government officials navigate the vast array of methods, tools, and indicators available for assessing diets and food environments in urban contexts. Rather than ranking or validating tools, UFED recommends fit-for-purpose combinations aligned with users' goals and available resources. This guidance, along with recommended research questions, supports users in generating evidence to inform effective programs and policies.

We invite implementers, policymakers, researchers, and other stakeholders to explore UFED and to use the tool to strengthen evidence-based decision-making.

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