Milan Urban Food Policy Pact Monitoring Framework

July 2018 version

> ### Indicator 8: Number of households living in "food deserts"

MUFPP framework of actions' category: Sustainable diets and nutrition

The indicator measures the geospatial distribution of the food retail establishments and of socioeconomic population groups to analyse the number (or percentage) of households living at a certain distance from food markets.

Overview table

MUFFP Work stream	Sustainable Diets and Nutrition
MUFFP action	**Promote sustainable diets** (healthy, safe, culturally appropriate, environmentally friendly and rights-based) through relevant education, health promotion and communication programmes, with special attention to schools, care centres, markets and the media.
What the indicator measures	Number of households living in "food deserts"
Which variables need to be measured / what data are needed	▪ Types of food retail establishments (supermarket, convenience store, etc.) ▪ Socioeconomic variables of population
Unit of measurement *(i.e. Percentages, averages, number of people, etc.)*	Number/percentage of households, km or miles to supermarket
Unit(s) of Analysis *(i.e people under 5 years old, etc.)*	If desired: disaggregate information for specific household categories (e.g. socio-economic wealth classes or areas in the city)
Possible sources of information of such data	▪ Public health authority inspection data ▪ Planning department business census ▪ Business licensing department records
Possible methods/tools for data-collection	-Analysis of existing datasets -Design and implementation of retail environment surveys
Expertise required	-GIS mapping, -Collecting data through product inventories/ surveys
Resources required/ estimated costs	Experienced GIS analyst

Specific observations	Cities in developed countries are more likely to have existing regulatory datasets on the types and location of food retail establishments. They cities are also likely to have very few informal, unlicensed retail outlets. In other cities, there can be a high number of informal shops which can be a very significant food source for many lower income residents. Traditional regulatory data sources will not capture these markets. Primary data collection will have to be done to take into account the characteristics of these informal markets and build a comprehensive picture of the city's food retail environments.
Examples of application	The Toronto Public Health Department led an analysis of the city's food retail environments in 2014 to assess the variation in the quality and quantity of food outlets in Toronto. The analyses were based on Toronto's public health inspection system database. The results showed that Toronto has very few "food deserts" defined as lower income areas with no supermarket within 1km walking distance. The research also looked at the availability of healthier vs less healthy food products geographically. Across Toronto there is also an overabundance of less healthy food options. According to an analysis of the modified food retail environment index (MFREI) which calculates the ratio of healthier to less healthy food store locations within a 1km walking distance from each city block on average there are four less healthy food stores for every healthier food retail outlet. Healthier food retail was defined as a supermarket, butcher shop, fish shop, bakery (some), or any smaller food store that sells a significant quantity of fresh produce. By this definition, about one third of all food stores in Toronto are considered healthier food retail. There was no significant correlation between neighbourhood income and index score. However, there are several areas of Toronto where low income and a low MFREI score overlap. In these areas, there are a high number of lower income households and the food environment within which they choose to spend their limited resources near home is dominated by stores that sell unhealthy food[1].

Since 2012, the Johns Hopkins Center for a Livable Future (CLF) and the Baltimore Food Policy Initiative (BFPI) have collaborated to examine the physical food environment in Baltimore City to identify gaps and opportunities in healthy food access. A 2018 report builds upon the 2015 report: Mapping Baltimore City's Food Environment by providing an update on the Baltimore City food retail environment, including an in-depth analysis that identifies geographic areas that should be prioritised for healthy food policy and programmatic activities, and strategies and opportunities to address healthy food access. In addition, this report specifically highlights various elements of the physical food environment, from retail outlets to urban agriculture to nutrition assistance, to provide a more focused look at each component[2]. |

Rationale/evidence

The subject of food retail environments is increasing in popularity among both researchers and policy makers. Food deserts have received a significant amount of attention because of possible connections with dietary behaviours, food purchasing, weight status, or diet-related disease outcomes. Typically, they are described as residential areas, often in cities, where low-income residents have limited or no geographic access to affordable food retail establishments offering a range of healthy food options. Long distances to supermarkets is exacerbated when residents lack the financial resources to own a car, have insufficient access to public transit or are socially isolated with few friends or family to rely on.

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[1] Toronto Public Health. Toronto Food Strategy: 2015 Update. June 2015.
[2] https://www.jhsph.edu/research/centers-and-institutes/johns-hopkins-center-for-a-livable-future/_pdf/projects/bal-city-food-env/baltimore-food-environment-digital.pdf

There is no consensus on a definition of "food deserts". Some authors question the usefulness of the food desert construct, arguing that it obscures the core issue of inadequate income, regardless of one's proximity to a supermarket. This variation in definition and approach creates inconsistency and ambiguity in the validity of their results, providing outcomes that can lead to differing or even contradictory opinions about the extent of the food desert problem and its actual location[3].

Baltimore (USA) recently renamed "food desert" areas of Baltimore where residents don't have ready access to healthy, affordable food to be now known as "*healthy food priority areas.*" According to Mayor Catherine Pugh the new term is more accurate. 'Deserts' implies there is no food, when actually there is an imbalance between healthy and unhealthy foods. A new study released by the city and researchers at the Johns Hopkins University concluded that 146,077 city residents live in such areas — 23.5 percent of the population. A total of 124,521 of them are African-American. To be deemed a priority area, a neighbourhood must rank poorly in a measure of food store quality, have a low median income, have more than 30 percent of households without cars, and be more than a quarter-mile from a supermarket[4].

To date, the presence and characteristics of food deserts have been studied primarily in urban settings including Australia, the UK, the United States and Canada. Results of research on food deserts are equivocal. Beaulac et al. (2009) found that clear disparities in food access exist by income and race in many cities in the U.S., but not elsewhere[5]. Food deserts have been identified in cities in Australia and the UK. However, in the latter, the establishment of a supermarket did not alter residents' diets.

Lytle et al. (2017) reviewed food environment studies and found that geographic analysis (65% of studies reviewed) was the most common method. However, only one in four studies reported the reliability of measures[6]. A challenge with many food desert studies is that their complex methods and detailed inputs, often requiring significant primary data collection, may make them difficult and expensive to replicate. Given the dynamic nature of the contemporary foodscape, where retailers routinely leave or enter a community, it is critical to be able to update food desert analyses regularly so they are current and relevant; complex, resource-intensive methods may make this challenging to do in a timely fashion[7].

Despite the contested nature of food deserts, and the lack of consensus on the appropriate methods to measure and describe them, they nonetheless have become an important concept that facilitates discussion, debate and negotiation within communities, and between communities and policy makers, about how to address food insecurity in the context of modern foodscapes[8].

Glossary/concepts/definitions used

Food Desert: There is no agreed upon definition of a "food desert". The USDA defines it as:
"a low-income census tract where either a substantial number or share of residents has low access to a supermarket or large grocery store. "Low income" tracts are defined as those where at least 20 percent of the people have income at or below the federal poverty levels for family size, or

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[3] D'Acosta, J. (2015). Finding Food Deserts: A Study of food access measures in the Phoenix-Mesa urban area. A Thesis Presented to the Faculty of the USC Graduate School. University of Southern California.

[4] See footnote 2

[5] Beaulac, J., Kristjansson, E., & Cummins, S. (2009). Peer reviewed: A systematic review of food deserts, 1966-2007. *Preventing chronic disease*, 6(3).

[6] Lytle, L. A., & Sokol, R. L. (2017). Measures of the food environment: A systematic review of the field, 2007–2015. *Health & Place*. 44, 18-34.

[7] Joyce et al. (2017), op. cit.

[8] Joyce et al. (2017), op. cit.

where median family income for the tract is at or below 80 percent of the surrounding area's median family income. Tracts qualify as "low access" tracts if at least 500 persons or 33 percent of their population live more than a mile from a supermarket or large grocery store (for rural census tracts, the distance is more than 10 miles)[9]."

Food Environment: The food environment includes features of the community, such as the number and kinds of food outlets in people's neighbourhoods (geographic food access). It also features the consumer experience, such as the kinds of foods that are available, affordable, and of good quality[10].

Food Swamp: Lower socio-economic neighbourhoods have high geographic access to food retailers perceived as promoting mainly minimally nutritious food options such as fast food outlets and convenience stores).

Preparations

Local governments may need to link with national government agencies, ministries and research institutes to coordinate data collection and analysis. One option could include an inter-sectoral monitoring team that includes statistical offices, national agencies/ministries and other sector representatives. The responsibility for data collection, analysis and dissemination, as well as reporting, could then fall on the inter-sectoral team. Establishing mechanisms for easy and transparent sharing and validation of data is critical for ensuring a strong link among stakeholders for implementing solutions.

A meeting should be organised with all partners who will be involved in this activity to:
- Agree on the objectives and scope of the analysis and data collection requirements
- Define the methodology to be applied for data collection and analysis, and
- How to coordinate the activities within the team.

Data Collection and Analysis

This section provides an overview of key issues in data collection and analysis. For a more comprehensive guide, please refer to the resources below:
- C. Misiaszek C., S. Buzogany and H. Freishtat (2018). Baltimore's city food environment: 2018 report. Johns Hopkins Center for a Livable Future and the City of Baltimore. Available at: https://www.jhsph.edu/research/centers-and-institutes/johns-hopkins-center-for-a-livable-future/_pdf/projects/bal-city-food-env/baltimore-food-environment-digital.pdf
- Minaker, L. (2013). Measuring the Food Environment in Canada. Ottawa, Ontario: Health Canada. Available from http://www.foodsecuritynews.com/resource-documents/MeasureFoodEnvironm_EN.pdf.
- USDA Economic Research Service (2017). Food Access Research Atlas: Documentation. Available from https://www.ers.usda.gov/data-products/food-access-research-atlas/documentation/.
- Ver Ploeg, M., Dutko, P., & Breneman, V. (2014). Measuring food access and food deserts for policy purposes. *Applied Economic Perspectives and Policy*, 37(2), 205-225. Available from https://academic.oup.com/aepp/article/37/2/205/8641.
- Centers for Disease Control and Prevention. (2014). Healthier food retail: Beginning the assessment process in your state or community. Atlanta: US Department of Health and Human Services. Available from https://www.cdc.gov/obesity/downloads/HFRassessment.pdf.

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[9] USDA (2017). Food Desert Locator. Release No. 0191.11. Available from https://www.fns.gov/tags/food-desert-locator.

[10] Minaker, L. (2013). Measuring the Food Environment in Canada. Ottawa, Ontario: Health Canada.

➢ Cohen, B. E. (2002). Community food security assessment toolkit (pp. 02-013). Washington, DC: US Department of Agriculture, Economic Research Service. Available from http://www.uc.edu/cdc/urban_database/food_resources/community_food_security_assessment_USDA.pdf.

Researchers have identified four features of the food environment for assessing quality and quantity[11].

- **Geographic food access** refers to the geographic availability of different types of food stores and restaurants. There are various ways to measure geographic access. For example, one can measure the proximity of homes to specific outlet types, such as grocery stores or fast food outlets. Another measure is to count the number of convenience stores or fast food outlets within a given geographic area.
- **Food availability** refers to the actual foods that are available in someone's neighbourhood. For example, studies examining food availability have looked at whether or not fresh fruits and vegetables are within a certain distance of peoples' homes, or the amount of shelf-space dedicated to energy-dense snack foods in someone's neighbourhood.
- **Food affordability** refers to the cost of foods within a defined area. It can be measured using an absolute method such as a nutritious food basket.
- **Food quality** measures subjective assessments of food quality – whether fruits and vegetables appear withered or bruised. Food quality measurement can gauge residents' satisfaction with the quality of foods in their neighbourhoods.

Variables for Disaggregation
The indicators related to food deserts can be disaggregated by:
➢ Regional differences
➢ Socioeconomic variations
➢ Informal urban settlements
➢ Locally important marginalised groups.

By disaggregating the data spatially (see the example from Baltimore below[12]) and by different socioeconomic strata, it is possible to identify which parts of the population do not have access to food retail outlets.

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[11] Minaker, L. (2013). op. cit.
[12] See footnote 2
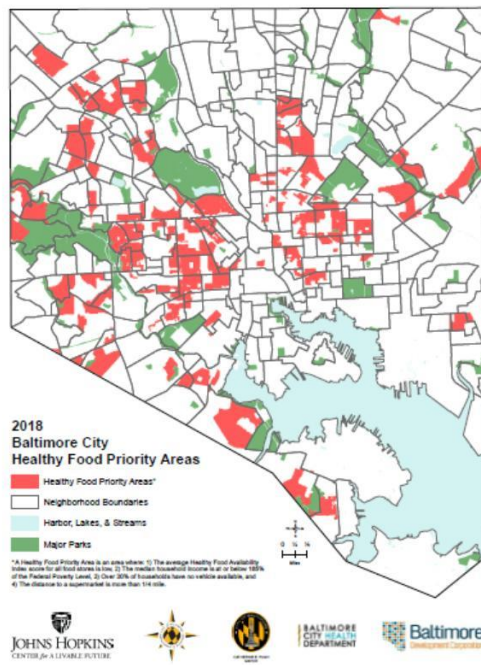
References and links to reports/tools

C. Misiaszek C., S. Buzogany and H. Freishtat (2018). Baltimore's city food environment: 2018 report. Johns Hopkins Center for a Livable Future and the City of Baltimore. Available at: https://www.jhsph.edu/research/centers-and-institutes/johns-hopkins-center-for-a-livable-future/_pdf/projects/bal-city-food-env/baltimore-food-environment-digital.pdf

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Su, S., Li, Z., Xu, M., Cai, Z., & Weng, M. (2017). A geo-big data approach to intra-urban food deserts: Transit-varying accessibility, social inequalities, and implications for urban planning. *Habitat International*, 64, 22-40.

USDA Economic Research Service (2017). Food Access Research Atlas: Documentation. Available from https://www.ers.usda.gov/data-products/food-access-research-atlas/documentation/.

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