

Examples from Baltimore City, Maryland

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Urban food systems are at great risk from shocks, such as hurricanes that wipe out stores in a matter of hours, and stresses, like drought that depletes a region's crops over years. Therefore, the food system should be an important part of disaster preparedness and urban resilience planning. Expanding urban agriculture is one way to support resilience. But to ensure food security for an urban population in the face of disruptions requires looking beyond production. Resilience planning requires an understanding of how to support the whole food system from farm to plate, and a consideration of how to make sure the food available after disasters is also healthy and accessible for urban residents.

The Baltimore City (Maryland, USA) Office of Sustainability and the Johns Hopkins University Center for a Livable Future teamed up to assess the resilience of Baltimore's food system. We took a holistic approach with particular emphasis on supporting food distribution and access within the city. The collaboration resulted in the *Baltimore Food System Resilience*

Advisory Report, which developed strategies for improving resilience in the food system supplying city residents, with a goal of supporting urban food security both now and after future crises.

The Advisory Report

In the *Advisory Report* we describe the current health of the food system feeding the city, assess the risk to the food system from hazards, analyse vulnerability to hazards for critical food assets and populations, and assess the level of preparedness for crises and adaptive capacity among food system stakeholders. We review environmental hazards threatening Baltimore, including winter storms, flooding, drought, extreme heat, strong winds and land subsidence. We also look at possible impacts from cyber and electrical system failures, contamination, civil unrest, terrorism, resource shortages, and economic and political shifts in the United States. *Advisory Report* work was informed by literature review, interviews with 36 stakeholders from the Baltimore food community (from farmers to food pantries), an estimation of the types and means of food transport through Baltimore using the US Department of Transportation's Freight Analysis Framework, and mapping geographic hazards (e.g. floodplains) in relation to vulnerable population groups.

Baltimore collaborators developed strategies for reducing vulnerabilities and supporting resilience by characterising

A 2010 blizzard in Baltimore temporarily blocked roads, making food transport and access to grocery stores difficult.
Photo by Seth Sawyers. Flickr, CC BY 2.0.





Keeping grocery stores well stocked despite supply chain disruptions is a key goal of urban resilience planning in Baltimore.
Photo by Mike Milli, Center for a Livable Future, 2015

report findings in relation to three questions: What can the city and its community partners do to ensure that, after a disruption,

1. food is available to residents?
2. food is accessible to residents?
3. food is acceptable (i.e. safe, nutritious, and culturally appropriate) to residents?

We based these questions on the Rome Declaration on World Food Security's definition of food security as, "all people, at all times, have physical, social, and economic access to sufficient, safe and nutritious foods that meet their dietary needs." To assist other jurisdictions considering similar efforts, below I share examples of how answering these questions informed our strategies to support food resilience through a food security lens in Baltimore.

Availability

Is the food supply chain flexible to disturbances, redundant enough to provide backup pathways for food flows, and able to adapt in the long term to systemic changes?

Baltimore, like many cities, is fed by a diverse network of farmers, distributors, retailers, non-profit organisations, and communities, at local to global scales. The complexity of the urban food supply chain creates both vulnerabilities and strengths for a more resilient system. For example, most of the food that residents eat is not grown in the city, which leaves urban residents more vulnerable to production failures or supply chain disruptions in other states or countries. Because the city itself is at risk of events such as blizzards, hurricanes and extreme heat, though, farmers inside city limits may also be at higher risk of those specific events than food producers in some other areas. Additionally, urban farmers are not likely to be able to operate at a scale sufficient to fully support the urban population, at any time. To address these issues, some *Advisory Report* recommendations focus on supporting agricultural product diversity in regional production (such as in the Northeast US) and an investigation into the agility of regional food supply chains.

Once food reaches the city, it must also be available for residents to acquire it in stores, markets, food banks and food pantries. In Baltimore, when interviewing for-profit and non-profit food suppliers, the smaller businesses and

non-profits we talked to tended to have fewer resources available to plan for emergencies and pay for insurance or backup equipment such as generators and refrigerated trucks, compared to larger, chain grocery stores or national disaster relief organisations. Smaller organisations tended to rely on committed and resourceful staff or volunteers doing what was needed to get food to people in a crisis. While these often heroic efforts can go far, improved resources and planning could help stores and other food sources remain flexible and reopen more quickly after events. The *Advisory Report* recommends that the city coordinate resources for small food businesses and non-profits to support their preparedness planning and backup infrastructure. For example, providing tax incentives for stores who purchase generators could support those smaller operations who otherwise would lose inventory or shut down.

Accessibility

Can consumers get to and afford the food that is available after a crisis? What existing food access barriers could make communities more vulnerable to disruptions?

Access to sufficient, nutritious food is a common challenge for urban residents in many cities, even under everyday circumstances. Baltimore residents already experience high levels of food insecurity compared with the national average, particularly among African Americans. Twenty-three per cent of residents are food insecure, and 23.5% live in areas designated as Healthy Food Priority Areas (formerly "food deserts"). Those are areas where many residents are low-income, do not have access to a car, live more than 0.25 mile/0.4 km from supermarkets, and where the food available within walking distance is not considered "healthy." Residents experiencing such challenges, as well as those who are on the cusp of food insecurity, are especially likely to lose food access after a crisis that adds an additional barrier, such as blocked roads, nearby stores running out of supply, or ineffective public transit.

Existing initiatives in Baltimore, such as tax incentives to bring supermarkets to Healthy Food Priority Areas, or non-profits' coordination of meal delivery services for homebound residents before winter, begin to address these ongoing access issues. We additionally recommended that the city consider proximity of transit stops to food access points in its public transit redesign. Although ultimately the



Corner stores with limited healthy food options are often the most convenient food source for many Baltimoreans.
Photo by Mike Milli, Center for a Livable Future



Programmes like Real Food Farm's Mobile Farmers Market make fresh food more accessible to Baltimore residents. Photo by Mike Milli, 2017

impact on food access could depend on the type of event and which food system component is disrupted, supporting more reliable transportation systems and diversifying food access methods and locations have potential to support overall diversity and redundancy in the food system, which are key components of resilience. Another recommendation included implementing and evaluating the effectiveness and feasibility of a pilot programme to set up community-based emergency food, water, and backup power storage. These “resiliency hubs” could provide temporary food assistance to residents who are unable to store emergency food supplies at home.

Acceptability

Even when available and accessible, will food be safe, nutritious and culturally appropriate for the population?

In Baltimore, nearly 23% of adults are obese and 12% suffer from diabetes. The high prevalence of diet-related diseases combined with an abundance of carry-out restaurants in Healthy Food Priority Areas suggest that the food sources that could theoretically be most accessible after a disruption may not stock nutritionally adequate food. To support diverse sources of healthy food in the long term, we recommended that the city build upon its existing initiatives to support healthy food access in vulnerable neighbourhoods. In addition, we recommended investigating the capacity of food assistance organisations to provide nutritious foods that also accommodate to special dietary needs. There is little data available on how well food pantries could accommodate to a surge in service needs if populations with special needs, such as those with diabetes or allergies, turn to food pantries more after events that make food unaffordable. Recognising that some events such as power outages could spoil perishable foods, we also suggested that the city include information about safe food storage and handling in its emergency preparedness communications to residents.

Finally, assessing cultural acceptability of food is more difficult given the city's ethnic and cultural diversity, but ensuring that there are sufficient supermarkets and stores open that provide a wide range of options can offer more choices and meet diverse needs and preferences.

Next Steps

Baltimore City will incorporate the *Advisory Report* recommendations into the update of its Disaster Preparedness Plan in 2018, with further community input. These examples provide just a taste of what the *Baltimore Food System Resilience Advisory Report* covers. They present one way that urban planners and researchers can marry efforts to support urban food security with initiatives to support food system resilience and disaster preparedness. Climate change, urbanisation and population growth threaten the viability of our agricultural systems and resources available to urban populations around the world. It is urgent that governments and researchers everywhere consider food as a critical component of urban resilience, and integrate food into resilience, disaster preparedness and climate action planning.

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References

- Biehl E, Buzogany S, Huang A, Chodur G. Baltimore Food System Resilience Advisory Report. Baltimore, MD; 2017.
- World Food Summit 1996, Rome Declaration on World Food Security.
- Misiaszek C, Buzogany S, Freishtat H. Baltimore City's Food Environment: 2018 Report. Baltimore, MD; 2018.
- Chandra A, Fuller C, Morris-Compton S, Rogers V, Barbot O. Healthy Baltimore 2015: An Interim Report.
- Baltimore City Health Department. Baltimore Community Health Survey 2014: Summary Results Report. Baltimore, MD; 2014.