MODULE 5:
STRATEGIZE

DEVELOP STRATEGIES FOR IMPROVING RESILIENCE

This section will help you to:

- Synthesize information on food system functions, assets, hazards and risk in ways that help you identify strategies
- Learn two different approaches for brainstorming strategies to improve food system resilience
- Prioritize strategies to support more equitable and just food systems as well as resilience

This module will take you through the process of identifying and prioritizing potential solutions and strategies to improve resilience. The activities in this module assume that you have a good understanding of the current health of your food system (Steps 1 and 2 of the **Assess** module), the hazards most likely to pose a risk to it (Step 3 of the **Assess** module), and the vulnerabilities and attributes in the system that you expect will make it more or less resilient to a threat (Steps 4 and 5 of the **Assess** module).

Completing these steps first is critical because they underpin the strategy activities in this module. This module presents two approaches to help you develop strategies: the **Food System Functioning** approach and the **Resilience Attributes** approach. **You only need to use one of these approaches.**

The Food Systems Functioning approach relies heavily on Steps 1 and 2 in the **Assess** module, as the goal is to identify strategies that help promote and preserve a well-functioning food system (and the assets that allow it to function successfully) in the case of disruptive events. The Resilience Attributes approach relies more on information from Steps 4 and 5 of the **Assess** module, as the goal is to develop strategies that reduce vulnerability and bolster resilience attributes. Both approaches use Step 3 on identifying hazards.

We present these two approaches because depending on where the food system resilience work is positioned in your jurisdiction, one approach may align better with other work, existing or developing plans, or terminology used. A detailed description and suggestions for who might want to use each approach is provided below. In the tools, we provide templates that can be used as a starting point.

FOOD SYSTEM FUNCTIONING
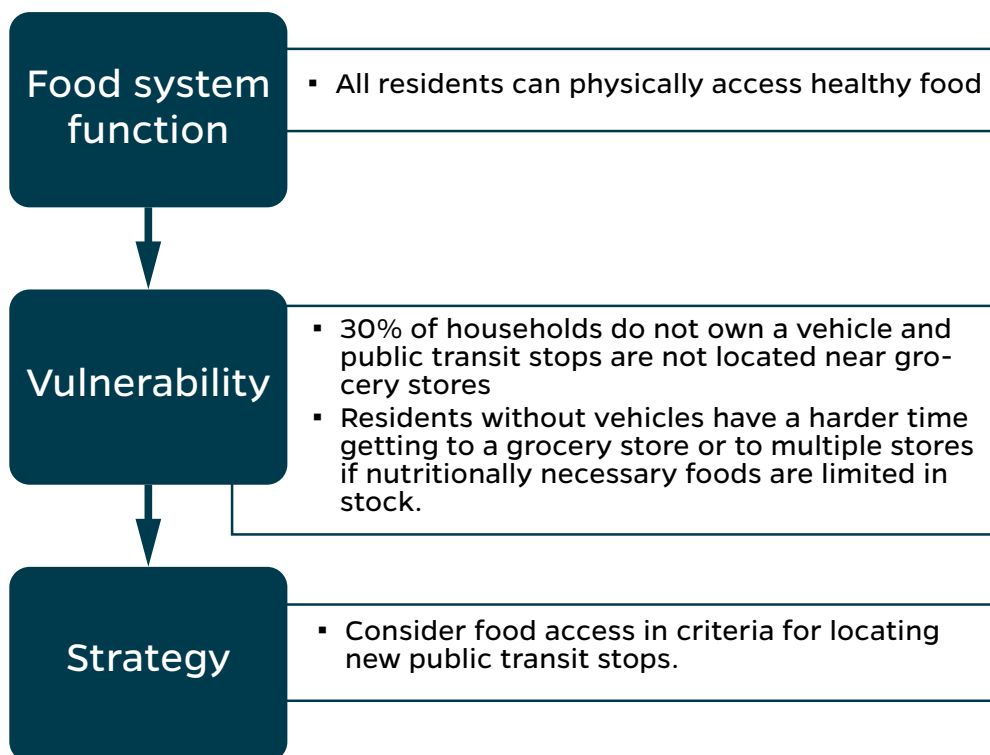
Strategies developed using this approach seek to improve food access, availability, and acceptability before, during, and after a disruptive event.[1] This method relies on the **Risk Assessment (page 70)** introduced in the previous section, which is a way to assess how a hazard can lead to a food system disruption. A disruption occurs when food is not accessible, available, or acceptable.[2]

This approach may be useful and appropriate for your work if:

■ Your organization has a program or individuals specifically focused on food systems or food policy work, and the food system resilience work is being led by these individuals or program.

■ You plan to integrate food system resilience into an existing or future food, comprehensive or emergency plan to communicate the co-benefits of food system resilience for other planning goals.

Figure 9 provides an example of how you might identify strategies using a food system functioning approach.

Figure 9. *Example of Food System Functioning-Focused Approach to Identifying Strategies, adapted from Baltimore Food System Resilience Advisory Report[3]*


```
┌──────────────┐   ┌────────────────────────────────────────────────┐
│ Food system  │   │ ▪ All residents can physically access healthy  │
│  function    │──▶│   food                                          │
└──────────────┘   └────────────────────────────────────────────────┘
        │
        ▼
┌──────────────┐   ┌────────────────────────────────────────────────┐
│              │   │ ▪ 30% of households do not own a vehicle and   │
│              │   │   public transit stops are not located near    │
│ Vulnerability│──▶│   grocery stores                                │
│              │   │ ▪ Residents without vehicles have a harder time │
│              │   │   getting to a grocery store or to multiple     │
│              │   │   stores if nutritionally necessary foods are   │
│              │   │   limited in stock.                             │
└──────────────┘   └────────────────────────────────────────────────┘
        │
        ▼
┌──────────────┐   ┌────────────────────────────────────────────────┐
│   Strategy   │──▶│ ▪ Consider food access in criteria for locating│
│              │   │   new public transit stops.                     │
└──────────────┘   └────────────────────────────────────────────────┘
```

TOOL #10: DEVELOPING STRATEGIES: FOOD SYSTEMS FUNCTIONING APPROACH

Description:

This activity aims to identify strategies that improve the functioning of the food system to ensure all people are food secure. It is important to remember that meeting one's food needs does not look the same for all people and that some people may require more support to reach food security. Strategies developed using this approach address the various elements of food security: economic and physical access, availability along the supply chain and of emergency food resources, nutritional and cultural adequacy, and food safety.

This activity draws from the **Risk Assessment (page 70)** tool. Use this tool to identify strategies that improve food security in the case of each hazard with the top risk scores identified using the **Risk Assessment (page 70)** tool.

A Microsoft Excel version of this tool is available for download here.

Instructions:

1. Select one of the hazards that you identified as having a high-risk score using the **Risk Assessment (page 70)** tool. Write the hazard at the top of the worksheet.

2. Identify strategies that will help to bolster food accessibility, availability, and acceptability in the case of this specific hazard. The worksheet breaks down each of the key components of food security—accessibility, availability, acceptability, equity—into the elements that impact that component to help you identify strategies that specifically target the various elements that impact food security.

3. Once you identify a strategy, provide a brief description as to why this strategy helps to promote the specific food system functioning element, ultimately improving food system resilience.

4. Some strategies are relevant across multiple hazards; for example, providing financial benefits to consumers will address threats to economic access regardless of the hazard that caused it. Copy/paste these strategies into the documents for other hazards.

5. You may identify strategies that preserve food system functioning but that do not fit in the elements provided. Put them in the Other category.

TEMPLATE. IDENTIFY STRATEGIES USING A FOOD SYSTEM FUNCTIONING APPROACH

Specific Hazard:	
Food System Functioning Element[2]	**Potential Strategies (Be as specific as possible)**
Accessibility	
Economic Access	
Physical Access	
Availability	
Supply Chain – Production	
Supply Chain – Processing	
Supply Chain – Distribution	
Supply Chain – Retail	
Donation/ Food Assistance	
Organizations	
Acceptability	
Religiously/Culturally Appropriate	
Nutritional Adequacy	
Dietary Health Concerns	
Food Safety	
Equity	
Procedural	
Distributional	
Structural	
Intergenerational	
Other	

Remember you should complete this activity for all of your top hazards.
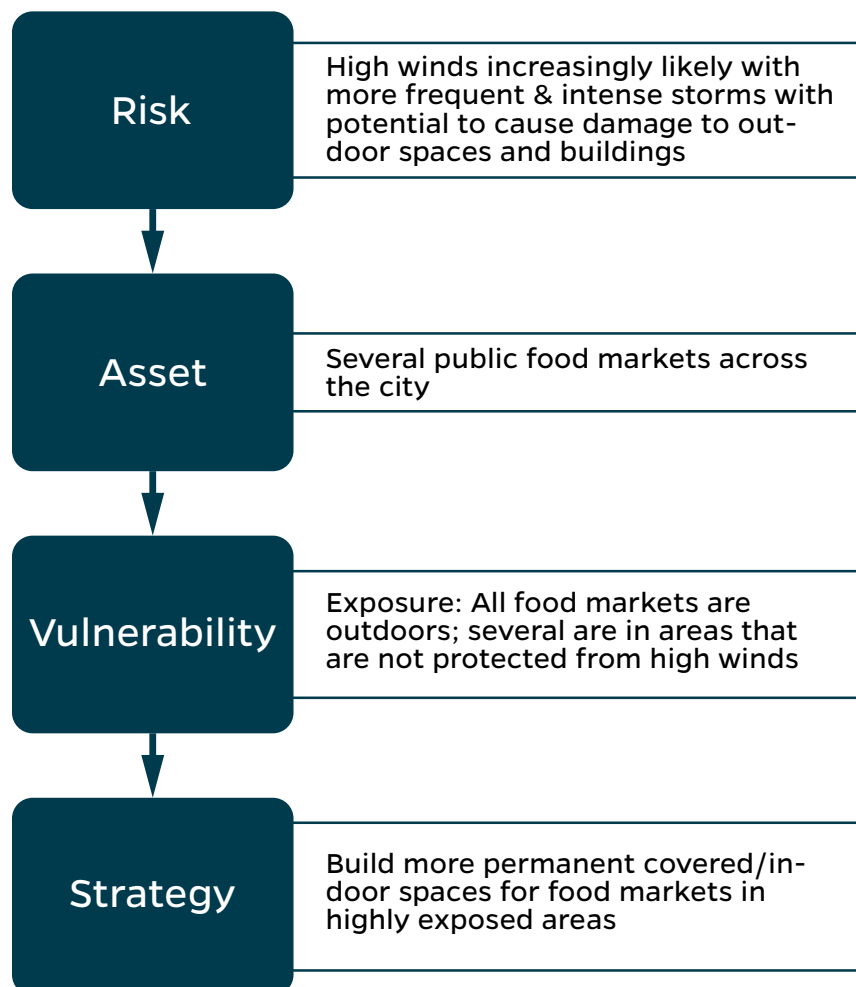
RESILIENCE ATTRIBUTES APPROACH

Strategies developed using this approach seek to reduce vulnerability and increase resilience attributes specific to previously identified "critical" food system assets. Assets may be social, political, natural, or physical. It is important to note that different disciplines may use asset-based planning to mean different things. This method aligns with the framing and methods used in hazard mitigation plans, where the focus is on *protecting* critical assets, infrastructure, and populations in the face of specific hazards.

Compared to the Food System Functioning Approach, Resilience Attributes may be more appropriate if:

- The food system resilience work is nested within a resilience or climate change plan for your jurisdiction or is led by individuals familiar with climate adaptation and resilience.
- There is a specific hazard that poses especially high risk, or the group has decided they would like to focus on one or a few hazards.

Figure 10 provides an example of how you could develop strategies using a resilience attributes approach.

Figure 10. *Steps of a Resilience Attributes Approach to Identifying Food System Resilience Strategies*

Risk	High winds increasingly likely with more frequent & intense storms with potential to cause damage to out-door spaces and buildings
Asset	Several public food markets across the city
Vulnerability	Exposure: All food markets are outdoors; several are in areas that are not protected from high winds
Strategy	Build more permanent covered/in-door spaces for food markets in highly exposed areas

TOOL #11: DEVELOPING STRATEGIES: RESILIENCE ATTRIBUTES APPROACH

Description:

This method requires familiarity with the elements that contribute to food system vulnerability—exposure, sensitivity, and adaptive capacity—and the food system resilience attributes. (See the **Get Started (page 5)** module, **Understanding Food System Resilience (page 13)**). When developing strategies using this approach, you want strategies that will:

- Reduce exposure
- Reduce sensitivity
- Increase absorptive capacity
- Increase adaptive capacity
- Increase transformative capacity
- Increase diversity
- Increase redundancy
- Increase connectivity
- Increase capital reserves
- Increase flexibility
- Increase preparedness
- Increase procedural equity
- Increase distributional equity
- Increase structural equity
- Increase intergenerational equity

This activity draws from the **Risk Assessment (page 70)** tool and uses both the hazards and respective assets that you identified for your jurisdiction. Use this tool to identify strategies for each of the highest-risk hazards and for each of the hazard's respective assets identified using that tool.

A Microsoft Excel version of this tool is available for download here.

1. Select a priority hazard and a related asset from your **Risk Assessment (page 70)** tool. Write both at the top of the worksheet.

2. For each asset, identify potential strategies to address food systems vulnerabilities, specifically reducing exposure, increasing sensitivity, or increasing adaptive capacity. In addition to identifying strategies to address vulnerability, identify strategies that enhance resilience attributes—diversity, redundancy, connectivity, capital reserves, flexibility and preparedness. For this exercise, we have also included the category of equity and diversity. Be sure to consider strategies that specifically address inequities caused by a hazard. Think about this first from the food system infrastructure perspective (i.e., reduce exposure for critical infrastructure assets) and then from the social perspective (i.e., reduce exposure for critical human assets).

3. For strategies that do not fit in the listed categories, put them in the Other category.

TEMPLATE. IDENTIFYING STRATEGIES USING A RESILIENCE ATTRIBUTES APPROACH

Specific Hazard:	
Asset:	
Resilience Measure	**Potential Strategies (Be as specific as possible)**
Exposure	
Sensitivity	
Absorptive Capacity	
Adaptive Capacity	
Transformative Capacity	
Diversity	
Redundancy	
Connectivity	
Capital Reserves	
Flexibility	
Preparedness	
Procedural Equity	
Distributional Equity	
Structural Equity	
Intergenerational Equity	
Other	

PRIORITIZE STRATEGIES

Once you develop your strategies, it is important to prioritize the strategies so that you know where and when to invest time and resources. The first step is to define the criteria that will be used to evaluate potential strategies. These criteria will help you to focus the list of strategies on those that are most appropriate for your community.

Define criteria for evaluating potential strategies

To define the criteria by which to evaluate all possible strategies, consider the following questions:

1. What makes a strategy "high-impact"? What do you think are the actions likely to have the highest impact from your list of strategies? Why?

2. What do you think are the most feasible actions from your table? Why are they the most feasible?

3. Which resilience attributes or elements of vulnerability are most important to your community? What actions from your list do you think would have more buy-in from leadership? From communities? From implementation actors? Potential opponents?

4. What actions have the greatest potential to promote equity and justice? Were any of the actions co-developed with community? Which ones reflect values and needs shared by community members throughout the planning process?

5. What factors will affect which strategies you choose—cost, leadership, political will, area/sector targeted, feasibility?

6. Are there targeted populations to consider in your decisions about strategies?

7. What actions are "win-win" (if the hazard never occurs, this action will still be beneficial)?

The following are criteria for consideration from the Community of Practice members.

- Feasibility
- Effectiveness at enhancing/protecting prioritized assets
- Effectiveness at addressing prioritized vulnerabilities
- Effectiveness at addressing long-term goals for food system improvement
- Equity
- Cost
- Cost-Effectiveness
- Political and social will
- Ethics and potential unintended consequences

See the **Learn More** section at the bottom of this module for an additional resource with criteria to consider for prioritizing strategies

Image Credit: CraigKelley62, Non Perishable Food in cabinet, Wikipedia, CC BY-SA 4.0

TOOL #12: STRATEGIES DECISION MATRIX

Description:

The Strategies Decision Matrix is a tool that can help you decide what strategies should be top priority for your organization. This tool offers a quantitative approach to help you prioritize strategies. It can also be used to gather input from different partners regarding which strategies to prioritize. The tool provides a list of criteria to evaluate and score each strategy and allows you to assign a weight to each criterion based on importance.

A Microsoft Excel version of this tool is available for <u>download here</u>.

Instructions:

1. Review the suggested criterion in the table provided and decide what is most important to your team. Add new criteria or remove suggested criteria as appropriate.

2. For each criterion, assign a weight. The weight should indicate how critical this criterion is to your organization. Use a scale of 1-5 for the weight values. For example, if cost-effectiveness is the most important thing to your organization, you might assign it a weight of 5.

3. Rank each food system resilience strategy with a score of 1 (lowest) to 3 (highest) for each criterion. A score of 1 means that the strategy does not meet the criterion while a score of 3 means that it does meet the criterion. A score of 2 means that some aspects of the strategy may meet the criterion.

4. Once you have scored each strategy, multiply the score for each strategy by the weight. Put your final score in the "Decision Score" column.

5. Review the final decision scores with other partners and community members. Consider if the scores seem appropriate and accurate for the strategy.

   ■ Do any need to be adjusted?
   ■ Does a low score render the strategy untenable or is it something to consider later on?
   ■ Does a low score for a criterion render the strategy untenable, even if it scores high on other criteria?

6. After reviewing the scores, order the strategies from high to low scores. Of the low-scoring strategies, are there any that can be removed?

7. Next, consider how you would prioritize the strategies by short-term, mid-term and long-term. Not all strategies that are scored high are short term, some may take longer to achieve.

TEMPLATE: FOOD SYSTEM RESILIENCE STRATEGIES DECISION MATRIX

Example Criteria

Strategies

Example Criteria	Criterion Weight (1-least important; 5-most important)	Strategy 1	Strategy 2	Strategy 3			
Feasibility (1-lowest; 3 highest)							
Effectiveness at enhancing/ protecting prioritized assets (1-lowest; 3 highest)							
Effectiveness at addressing prioritized vulnerabilities (1-lowest; 3 highest)							
Effectiveness at addressing long-term goals for food system improvement (1-lowest; 3 highest)							
Equity (1-lowest; 3 highest)							
Cost-effective (1-lowest; 3 highest)							
Political and Social Will (1-lowest; 3 highest)							
Ethics and potential unintended consequences (1-lowest; 3 highest)							
Decision Score (1-lowest; 3 highest)							

EXAMPLES OF FOOD SYSTEM RESILIENCE STRATEGIES

If you need some inspiration while identifying and prioritizing strategies for your local jurisdiction, this section presents examples from cities and regions across the United States. Some organizations may choose to create a stand-alone food system resilience plan, such as was done by Baltimore, Maryland, or Boston, Massachusetts. Others might integrate food system resilience into existing plans or documents (such as climate change or emergency operations plans). While doing so has the benefit of being able to tap into the support, connections and mandates associated with these broader plans, it may require shrinking the list of food- or resilience-related strategies. The **Policy and Plan Scan (page 53)** activity in the **Define and Scope (page 34)** may suggest opportunities.

Below, we provide several examples of how cities have integrated food system resilience into existing plans.

- **Atlanta, Georgia:** The Atlanta Mayor's Office of Resilience developed the Resilient Atlanta: Actions to Build an Equitable Future plan in 2017, which outlines visions and actions the city can take to address the most pressing stresses and build capacity among city residents, organizations, and systems to withstand future shocks. The plan was created by leveraging existing planning efforts and bringing a resilience focus to existing goals and projects. The plan received feedback from residents, advisory members, city businesses, and faith-based and community-based organizations. Below is an example of a food systems goal and action included in the plan (page 81):
  - Develop a resilient local food system by 2025 by:
    - Increasing food access and creating new opportunities for education and employment.
    - Conducting an assessment of the role of local food systems in buffering Atlanta from potential disruptions and to recommend new policies.

- **Hartford, Connecticut:** The 2017 Hartford Climate Plan builds on previous sustainability documents and processes and has been incorporated into the city's comprehensive plan. The plan has six integrated action areas: energy, food, landscape, transportation, waste and water. Within the food action area, the overall vision is to have "nutritious food that is locally grown or non-carbon-intensive, and is readily available across all neighborhoods, leading to improved health and greater resiliency for area families." Below are examples of goals and actions that include food resiliency included in the plan (page 38):
  - Increasing food resiliency through strategies such as:
    - Facilitate commercial indoor farming to ensure year-round production of produce through easy permitting and incentive programs;
    - Educate residents on food planning for emergencies to ensure residents are informed about keeping an adequate food supply before an extreme weather event occurs;
    - Create a plan for food distribution in emergency situations to ensure residents who are unable to plan for emergencies are still able to access food.

- The plan also refers to food systems as a way to increase resiliency in other goals, such as empowering communities to grow their own food.

- **Boulder, Colorado:** City of Boulder's Resilience Strategy, created in 2016, is a strategy document to strengthen the city's preparedness for and ability to respond to future challenges. Below is an example of an action related to the food system:

  - Ensure the resilience of the local food system by:

    - Designing and conducting a local food system assessment. The city will conduct an entirely new food security assessment and include a broad range of partnerships to understand how changes in the complex dynamics of food production, delivery and consumption system can be impacted by disruption but also meaningfully mitigated by local action.

- **Tampa Bay, Florida:** The Tampa Bay Regional Resiliency Coalition was formed in 2018 and had 31 members from 7 counties and 24 cities in 2021. The Tampa Bay Regional Resilience Action Plan created by the Coalition in 2021, will help to reduce the risk to people and property by anticipating and preparing for sea level rise, storms, flooding, extreme heat and other emerging hazards in the region. Below are examples of a goal and actions related to food systems included in the plan (pages 98-100):

  - Food systems become more sustainable and resilient, and access to healthy foods is improved through actions such as:

    - Develop a food resiliency plan
    - Develop an inventory of agriculture lands, number of farms, vacant lots and production outputs to understand potential opportunities
    - Develop incentives to increase local food production and processing and distribution
    - Implement sustainability outreach and education efforts to develop culture around reducing food waste

LEARN MORE ABOUT PRIORITIZING STRATEGIES:

- Intervention Decision Matrix: Oklahoma State Government

REFERENCES:

1. Food and Agriculture Organization of the United Nations. (2006). Food Security. *Policy Brief Issue 2.*

2. Chodur, G. M., Zhao, X., Biehl, E., Mitrani-Reiser, J., & Neff, R. (2018). Assessing food system vulnerabilities: A fault tree modeling approach. *BMC public health*, *18*(1), 1-11.

3. Biehl, E., Buzogany, S., Huang, A., Chodur, G., & Neff, R. (2017). Baltimore food system resilience advisory report. Baltimore (MD): Baltimore Office of Sustainability & Johns Hopkins Center for a Livable Future.