

URBAN FOOD SYSTEMS CHALLENGE AREA VISION

With more than two-thirds of the world's population projected to be living in cities by 2050, how cities function and the systems that support them will have an overwhelming impact on the major challenges of the 21st Century. The Urban Food Systems Challenge Area aims to increase our ability to create healthy and equitable food systems in urban areas, from mega-cities to smaller cities, while understanding the synergistic effects between urban food systems and the urban environment.

MAJOR FACTORS IMPACTING URBAN FOOD SYSTEMS

Urban food systems can be a dynamic and adaptable systems. Our ability to create equitable, sustainable and resilient urban food systems is influenced by several factors, including:

- Market forces: supply and demand, social norms and others
- Economic constraints: labor, land (affordability, competition, zoning), importing food vs local production, trade and profitability vs. affordability
- Equitable access: transportation, cost competition between food and other basic needs, retail environment and affordability
- Food waste
- Extreme climate impact: production, transport, land use, water use and other resources

CHALLENGE AREA GOALS

- Increase our capacity to feed urban populations healthy, high quality, and nutritious food
- Ensure healthy foods are physically and economically accessible
- Minimize greenhouse gas emissions from urban food systems
- Support regional food and agricultural economies
- Incorporate innovations across the urban environment for urban food systems design

PRIORITY AREAS

There are four highly interconnected, priority areas within the Urban Food Systems Challenge Area outlined below.

Food and Nutritional Security

This priority area focuses on decreasing food and nutritional insecurity. Research topic areas include:

- Food access and affordability: identifying drivers of system change across the urban environment
- New technologies: identifying applicable technologies (smart cities) that can be applied in novel ways and that promote scalability
- Novel interventions: social and technological innovations that promote food and nutritional security
- Cross-sector insights: utilization of diverse data sets and cross-sector solutions

Food for the City

Understanding where an urban environment obtains its food is essential to creating a functioning sustainable food system. While each urban area faces unique challenges, the general research topics for this priority area include:

- Food source: identifying where our food comes from to understand how a multitude of systems (local, rural, transnational) feed our cities and neighborhoods, and contribute to the overall food and agricultural economy
- Production systems: identifying the role a variety of urban and rural production systems collectively have on healthy urban environments and areas suitable for production
- Supply chain: new technologies for increased efficiencies and cost of production vs. importing

Food and Agricultural Economy

This priority area focuses on research topics where the food and agricultural economy can be an economic driver and promote food and nutritional security. Topic areas include:

- Products: regional production and high-value products
- Circular economy: food production/system byproducts
- Urban environment: design/organization to promote economic viability and efficiencies that enhance farmer profitability

Urban Resilience Through Agriculture

This priority area focuses on research topics that provided a role for urban agriculture in protecting urban environments. Research topics include:

- Production: agriculture to protect coastal and flood-prone areas, heat island reduction, brownfields, aquaculture and innovative farming practices
- Land-use: areas best suited for specific production practices
- Products: regional production and new high-value products

CROSS-CUTTING THEMES

The themes outlined below cut across multiple priority areas.

Urban Metabolism

Urban systems are shaped by the resources that flow through them. Understanding the flow of resources aids in designing effective urban and regional food systems that promote economic growth and food and nutritional security.

Alternative Food Networks

Many food networks exist within urban environments, from the local food initiatives being enacted across the country to other successful food networks that operate across Chinatowns, Amish communities and others. Understanding how these systems function may elucidate a variety of tools that can be applied across the food system.

Integration Across the Urban Environment

Understanding the connections between the urban food system and the rest of the urban environment is paramount to producing sustainable healthy food systems. Much of this includes utilizing diverse data sets and data models, urban planning and innovative urban technologies.