

Introduction

Our first workshop, held in November 2019, explored the resilience of the urban agriculture (UA) system in Lansing. We celebrated successes, discussed challenges, and shared visions for the future of urban agriculture in Lansing. The conversations informed a [report](#) where we outlined elements that make the urban agriculture system resilient and/or vulnerable to shocks, highlighting four main categories:

- 1) Governance and institutions
- 2) Community and networks
- 3) Financial and material resources
- 4) Knowledge and practice

We weren't expecting such a large shock to the system to occur so quickly afterwards that would test these conclusions, but since March 2020 the COVID-19 pandemic has had a significant impact on all our systems, including urban agriculture. On December 1st 2020 we held a second workshop to explore how Lansing's urban agriculture system was affected by and responded to COVID-19. The discussion allowed us to further our understanding of what builds and erodes resilience in the system. It was framed around three elements:

- Challenges and opportunities created by COVID-19
- Needs for capacity building that would allow response to these challenges and opportunities
- Shifts in visions for a desirable Lansing urban agriculture system as a result of this shock

Resilience is the capacity of a system to respond to change through adaptation or transformation while maintaining structure, function, and identity *and* support positive and proactive development. Broadly, food systems exist

BOX 1. RESILIENCE PRINCIPLES RECAP

Resilience theory provides a way to discern the characteristics of systems that enable them to respond to change and continue to develop. Resilience researchers have identified seven principles that can be managed to encourage resilience:

Maintain diversity: Systems that are more diverse are generally able to cope better with disturbance or uncertainty (e.g., a flood, a pandemic) than less diverse systems. This is because diversity provides for redundancy and improves the likelihood that system components can compensate if other system components fail.

Manage connectivity: Systems that are well-connected facilitate access to new ideas, information, and resources that help to adapt to or mitigate surprises.

Encourage Learning: Social-ecological systems maintain their function by being dynamic and building capacity to adapt. A system that encourages learning is constantly incorporating new knowledge and experiences and is therefore more prepared to adapt to disturbance than one that does not.

Broaden participation: The more actors hold a shared understanding of, feel a part of, and benefit from the system, the more they will work together to maintain it.

Manage slowly changing variables or feedbacks: Some slowly changing variables in a system, like racism or soil structure, can maintain or limit the resilience of a system but are often forgotten in management plans. If such variables are not understood or managed, conditions may cause the system to cross a threshold that results in an undesirable system reorganization.

Foster complex adaptive systems thinking: To manage for resilience, decision-makers must understand that systems are complex and unpredictable and that one-size-fits-all solutions do not exist. When working in cities, it is important to recognize that different people experience ecological and social environments differently and manage accordingly.

Promote polycentric governance: As for participation, encouraging management by multiple decision-making bodies can enhance coordination and collective action in times of surprise and uncertainty.

for the function of the provision of food. But our urban agriculture systems offer many other functions too which enrich our lives, as outlined in our last workshop (e.g., building community cohesion, cultural diversity, biodiversity, education). When studying the resilience of Lansing's UA system through the pandemic, we are looking to see if the varied functions and thus the overall identity of the system are maintained.

As with the last workshop, we applied the seven principles of resilience (see Box 1) to analyze the conversation through a resilience lens by interpreting elements that helped and hindered the functioning of the system. The principles informed a deductive analysis where we identified elements of the system and its activities that aligned with the seven resilience principles, along with whether the conversation indicated an increase or decrease in the observed resilience principle, indicated by "↑" or "↓" respectively in Table 1. Resulting actions were then analyzed to classify them according to the three ways in which resilience is demonstrated:

- Coping: short term, reactive responses such as transitioning to virtual gathering versus in person meetings and alterations in staffing as individuals take on new roles.
- Adaptation: actions that require a little more planning but are still relatively responsive, such as educating home gardeners versus encouraging community garden participation.
- Transformation: proactive responses to create long term change. There were no changes in the vision or identity of the system, but many organizations noted the desire to become more proactive in their planning to prepare for future shocks to the system. This hadn't been discussed before the shock of the pandemic occurred.

While the conversation outlined the differentiated impacts on those who participated in the workshop, here we synthesize the conversation to present broad trends. Everyone was impacted differently by the shock of the pandemic - some groups were hit much harder than others and we should remember that marginalized groups may have felt impacts beyond those as described here.

Resilience of the UA system to COVID-19

The workshop demonstrated that the Greater Lansing UA System showcased its resilience during a time of challenges and hardship endured by all. After 14 months, there was little to no change within the overall identity of the system, indicated by:

- 1) Most functions being achieved, although often through alternate approaches, demonstrating coping and adaptation. This was more impressive given participants reported funding was an issue - where usually the networks and relationships serve to assist in funding and resource management, there were limited resources within this large network.
- 2) The structure of the system not significantly changing - elements of the system (gardens, organizations etc.) were able to continue throughout. A common impact was alterations in staffing, but the expectation was these will return to prior levels once organizations resume in-person gathering and work.

There were 3 main principles that supported the resilience of the system: *Connectivity* - as demonstrated by our work previously, this was already high and strong relationships with core organizations like the Allen Neighborhood Center, Garden Project, MIFMA, and MIFFS supported the transfer of information through the pandemic; *Learning* - learning occurred for multiple groups, consumers, gardeners, organizations; *Participation* - while participation decreased initially in community gardens learning in the public was seen to

increase interest in UA as growers and consumers as they increasingly valued food's impacts on their health, their economy, and their environment, which translated to an increase in participation in the broad UA system.

Table 1. Results from the deductive analysis demonstrated that the pandemic had negative impacts on connectivity and participation, yet the system was still able to cope and adapt to ensure function was maintained.

	Diversity and redundancy		Manage Connectivity		Manage Slow Variables and Feedbacks		Foster Complex Adaptive Systems Thinking		Encourage Learning		Broaden Participation		Promote Polycentric Governance Systems	
	↑	↓	↑	↓	↑	↓	↑	↓	↑	↓	↑	↓	↑	↓
Hierarchy of governmental communication and guidance to COVID mandates.			X				X		X			X		
Inability to gather in person; shift to online meetings.			X	X					X		X	X		
Increased demand for resources with fewer volunteers available.		X		X		X						X		
Marginalized groups are further exacerbated by pandemic in UA.		X								X		X		

Visions for the system have not changed, but proactive planning to better prepare for future shocks was introduced as a priority where it hadn't been commonly discussed previously. Thus far, the system has been resilient to the pandemic, and organizations within the system were able to stay true to their identity and function throughout this time, maintaining their purpose within Lansing and utilizing their resources to continue to support the community, if not increasing their support. The remainder of this section outlines challenges and opportunities that the pandemic created and how the system responded, using principles to demonstrate resilience or a lack of resilience.

Changing communication

Due to the government's "stay at home" mandates, communication was initially a challenge as nearly all participants and organization staff were forced to work from their homes, with impacts on *connectivity* and *participation* through decreased access to gardens and the social interactions they support.

Regulations and best practices changed rapidly through the pandemic and each organization faced unique but interrelated challenges in 1) accessing and interpreting new information that was coming down through the formal governance system about safety practices, and 2)

responding to this information, changing practices, and communicating this to their members. Existing *connectivity* between organizations and stakeholders allowed for an increase in communication that supported *learning*. MIFMA and MDARD were key mediators of this information and the connecting role played by these organizations was critical as other groups were dependent on their timely and accurate translation of information.

Within organizations, this pivot online created some challenges - the quality of meetings was reported to suffer while the frequency of meetings increased and it was difficult to form new partnerships online. However, while gardening could not take place virtually, organizations found innovative ways to adapt their practices and communicate out to their own networks to support continued *participation* in urban agriculture, achieved by adapting to new forms of communication - online meeting platforms served to establish a suitable social context for the sharing of knowledge within the system. The adoption of technology for communication during the pandemic required groups and organizations to adapt their skills and *learn* how to effectively communicate via Zoom and other virtual meeting platforms. Organizations also advanced their *learning* about new teamwork strategies and skills and the increase in online events and resources from UA systems across the world supported networking and increased *connectivity* beyond the Greater Lansing UA system, including with direct mutual aid organizations. The success of this communication in supporting *participation* is outlined below.

Decreased operation in community gardens initially

The operation of community gardens is heavily reliant on *participation* of volunteers but due to public health regulations, decreased funding and an increased workload on fewer staff, many needs in this part of the food system were unable to be met initially. As a result, gardens opened late and planned projects that required labor (e.g., fencing) were delayed or cancelled.

Demonstrating the *complex adaptive system* and *connectivity* of the local system with broader economic systems, the delay or loss of grant funding and fundraisers created cascading effects which served to restrict and slow some activities in the system, such as resource shipment and processing of orders. These further disturbances lowered the productivity of the system as the production of food in community gardens was diminished, which in turn decreased other functions that the gardens usually provide (education, community cohesion, health and wellbeing).

Increased interest in urban agriculture

The combination of weaknesses in some supply chains and rapid increase in demand for certain foodstuffs as people were limited to home led to shortages in stores at the beginning of the pandemic. Workshop participants discussed how this supported an increase in *learning* for consumers, as people understood more about where their food came from, leading to an interest in their own household resilience (growing more food themselves) and wellbeing (from a dietary and physical health perspective), as well as the resilience of the food system (access to local food).

In parallel to diminished *participation* in community gardens, increased interest in growing food led to a higher demand for seeds, land, tools, and other gardening resources for home gardeners. While many growers were unable to independently receive such items in a timely manner, or had limited access to these resources, UA organizations demonstrated adaptability and pivoted to try and meet these needs (for example, the Garden Project offered an all-online

seed ordering system), increasing *connectivity* with and *participation* of home growers in the collective UA system.

The increased interest in local food systems meant UA organizations *learned* the importance of farmers markets within the food system as, in addition to growing at home, participants reported more interest from the general public in purchasing local food to support local producers, including urban farmers. Participants did report some difficulty in urban farmers meeting the new demand.

As 2020 progressed there was more media attention and requests for interviews with local food producers and distributors as the desire to *learn* and share knowledge with the public through media served to *broaden participation* even further. With this, organizations were able to reach new audiences and participants through media coverage and virtual education, such as virtual garden tours and video content engagement. UA actors were able to take their earlier learning about technology to further increase *connectivity* by innovating with new technologies to create virtual content that is easily accessible anytime of the year rather than just during the growing season.

Looping back to one of the initial challenges, later in 2020 the increase in public awareness (and perhaps greater practice in growing) led to an interest in volunteering in community gardens, demand for land from the Ingham County Land Bank, and resources for managing land. Therefore, UA supported further *broadening of participation* and providing new participants with comfort and purpose during a time of hardship when they were seeking purpose and meaning. Increased participation was seen by workshop participants to create a window of opportunity, where agriculture, and specifically UA, was considered essential by the general public, with potential long-term benefits to the UA system.

Taking on new roles in UA organizations

With the increase in demand also came an increase in workload on organization staff and often a need to take on multiple titles and new responsibilities, particularly early in the pandemic as volunteers quickly diminished, staff had to quarantine, and staff shifted to support emergency food distributions (i.e., within the Greater Lansing Food Bank Garden Project, which delayed the start of the garden season). Commonly, challenges with staffing demonstrated a lack of *redundancy* in structure of the organization, which had diverse roles but relatively few staff trained in each. When staff numbers dropped, staff were rotated to meet operational demands as certain roles were prioritized, which often meant taking on new roles. However, workshop participants highlighted how the pandemic highlighted this weakness and it was being incorporated into long-term planning for organizations.

Also highlighted was that, after the initial few months, organizations created new *connectivity* through networking with mutual aid organizations and strengthened existing *connectivity* with farmers, who increased their role in programming. This is indicative of the adaptations taken place as the initial scope of the shock was realized and were emergent behaviors that allowed the system to maintain function and potentially improve its functioning by working together.

Differentiated impacts

A common challenge was related to equity challenges created by the pandemic as marginalized communities in Lansing's UA system were most negatively impacted. For example, there was a digital divide for gardeners who didn't have familiarity with or access to the internet and there

were initial challenges in creating linguistically appropriate online outreach materials. Also noted was some decrease in gardening engagement in immigrant and refugee communities and high-risk communities due to fear of being around other people, which made space for new gardeners but potentially not those from diverse backgrounds. Finally, the delayed start to the garden season meant that food pantries did not receive donations from gardens, with implications for food insecure households in Lansing.

The discussions about equity highlight that the COVID-19 exacerbated existing inequalities and therefore there is still a need to *learn* how to include diverse populations and their perspectives within the system. Determining ways in which we can foster a *diverse* community requires more communication between these marginalized communities and our organizations to create trust that can support *participation*.

Capacities supporting resilience (or not)

The above section outlined that there were three main principles that supported resilience:

- *Connectivity* - as demonstrated by our work previously, this was already high and strong relationships with core organizations like the Allen Neighborhood Center, Garden Project, MIFMA, and MIFFS supported the transfer of information through the pandemic.
- *Learning* - learning occurred for multiple groups, consumers, gardeners, organizations.
- *Participation* - while participation decreased initially in community gardens learning in the public was seen to increase interest in UA as growers and consumers as they increasingly valued food's impacts on their health, their economy, and their environment, which translated to an increase in participation in the broad UA system.

The workshop discussions outlined that strong social capital within Lansing's UA system had supported all three principles, with information flowing from a few key (and trusted) organizations, plus evolving and new relationships with groups in and out of Lansing. Increasing public interest in UA meant that demand for local food and online seed orders (although coupled with increased delivery costs) ensured functions continued to be achieved through home gardening during the initial part of the pandemic. The return of volunteers (both a form of social and physical capital) later in the pandemic supported the return of community gardens.

Generally, interruptions in function were a result of a lack of *diversity* - there was insufficient redundancy in resources in the system, particularly in funding and staff. This is not unusual, and didn't result in the collapse of the system, but does indicate which capacities would have supported a quicker response to the pandemic and where future planning should focus around to a) be more resilient to future shocks and b) support increasing increased thriving in the future.

Relatedly, workshop participants outlined ways of further strengthening *connectivity*, *learning*, and *participation* in the system. While key organizations were successful in disseminating information down to communities, those representing these organizations found translating information from (multiple levels of) government difficult, and it sometimes information could be interpreted in multiple ways. The general impression is that when information was vague (i.e., can you travel to water in a garden), risk-taker farmers got ahead but rule-followers were hindered. Clearer information from governments and assistance in translating this information would reduce resulting inequities in the future.

While social capital within the UA system was a strength, there are multiple ways to strengthen the social networks and relationships. To begin with stakeholder mapping was posited as a way to understand all actors already in the system (including marginalized groups) and their connections. The map then can be used as a basis for identifying weak or missing connections and increasing inclusion of marginalized groups and other food system actors in restaurants, food pantries, wholesale, and retail.

To ensure UA supports the thriving of Lansing's broader communities through shocks, a grassroots community network was suggested, with a platform that allows UA actors to connect with communities and determine their needs. Finally, taking advantage of new online tools and strategies to strengthen relationships outside of Lansing would provide new information to support further *learning*.

A final capacity outlined was that of foresight - that networks should support earlier conversations to prepare for such shocks.

Visions

Our last workshop highlighted multiple visions for UA in Lansing (outlined below) and generally, it was noted that these visions are still valid and worth pursuing, but that progress has stalled as organizations had to pivot towards maintenance of their functions rather than expansion, although one organization (the Land Trust) outlined how the pandemic provided time and bandwidth to plan and do mission building. Conversely, it was also noted that the increase in public interest provided a window of opportunity to move towards such visions.

Workshop participants highlighted the difficulty in long-term planning while the pandemic is still ongoing, and that an interim step might be short-term, flexible visions and goals. When discussing shifts in visions, there were a few new elements highlighted that reflect the specific capacities that support resilience and that were found lacking during the pandemic - some are subsets of the original visions (black), some are new visions (orange). They can be seen to further strengthen the principles that support resilience in the system (*connectivity, learning, participation*) and address *diversity* (where limits were reached), with respect to both diversity of resources and diversity of social networks and governance (i.e., *polycentric governance*).

- Increased collaboration and interconnection:
 - More New Americans in UA leadership roles
 - Training and education on historical context of work towards equity in the food system
 - Reach and support those most marginalized to support equity and resource maintenance
 - Active cooperatives/resource hubs for tool sharing, resource sharing, seed saving, and marketing (including administration and sales to take the burden off shoulders of producers)
 - Moving toward more mobilization of resources
 - Projects with Lansing schools to engage youth in UA and ensure school gardens don't get cut as they suffered most with COVID-19
 - Formal and informal relationships with MSU established and growing
 - Programs for home gardeners
 - Consistent meetings
- Discuss ethics of food system:

- Renew focus on community health
- Respect for non-human partners
- Ensure farmers are compensated fairly enough to subsist on UA production
- Increased accessibility of local food:
 - Online ordering, delivery, pick-up systems
 - Supply the needs of local food pantries, especially with culturally appropriate foods
- UA normalized as a legitimate use of urban space:
 - A mayor-established UA committee meeting regularly
- Regular use of 'Lansing Grown' label:
 - Increase efficiency and scale - farmers markets are not the most efficient way to sell produce
- More proactive, less reactive approaches
- Sustain supply and demand created by COVID-19

Before our interactions, we assumed visions would include transformative actions. As we've learned more about the system we have learned that most participants are happy with the current scope and function of the system - their goals are to strengthen from within (i.e. support the capacity to cope and adapt) not transform. COVID-19 didn't change this - participants are searching for ways to improve what they're doing to meet the needs of their community, not to become something else.

Conclusion

While there were challenges with in-person participation in both growing and management of the gardens (with an impact on productivity of the gardens in 2020), the pandemic also brought opportunities - mostly increased demand from Lansing residents to participate in urban agriculture both as growers and consumers. Throughout the past 18 months, the overall structure, function, identity of the urban agriculture system has been maintained, thus our conclusion is that the system was able to cope and adapt to the changes brought by the COVID-19 pandemic.

The pandemic did highlight a need for proactive planning within the system and individual organizations to increase their resilience by creating more redundancy and diversity in job positions and resource streams. Our discussions identified needs for capacity building in such organizations, to allow them to better respond to challenges and opportunities - while social capital was strong and supported connectivity, funding was a challenge and increased financial resources would have allowed organizations to respond to challenges more quickly.

Finally, the visions that we outlined in our previous work have not changed significantly because of COVID-19, but participants are perhaps a little more ambitious about these visions for the future because of the increased demand. To further outline these futures and pathways to them, MSU will continue to support the visioning process by hosting more regular meetings, stakeholder mapping to support increased collaboration and interconnection, especially with marginalized groups, and deepening relationships between stakeholders and MSU.

Workshop Participants

Extension Educators

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Policy Maker:

Eric Schertzing – Ingham County

Planners:

Andi Crawford – Lansing Place Makers

John Krohn – Land Bank

Non-profits:

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Jen Silveri – Michigan Food and Farming Systems

Elizabeth Stepnioski - South Lansing Community Development Association

Yolanda Williams – Southside Community Coalition

Growers:

Sarah Brown – Highwater

Morgan Doherty – Capital United Land Trust

Aliza Ghaffari – Magnolia

Grant Gliniecki – Giitigan Community Garden

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