

Connecting the Dots: Building Community Wealth for Food Security, Resilience and Well-Being

Finding Deep Leverage Points – A Starter Kit

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Dedicated to our communities whose lives have changed from living with COVID-19

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INTRODUCTION: FINDING DEEP LEVERAGE POINTS

Folk who do systems analysis have a great belief in “leverage points.” These are places within a complex system (a corporation, an economy, a living body, a city, an ecosystem) where a small shift in one thing can produce big changes in everything. – Donella Meadows, environmental scientist, teacher and writer.

With limited resources in public health, using deep leverage points are invaluable. These leverage points are present across all systems. With strategic efforts, we could achieve our vision in the Prevention Agenda to make New York the healthiest state.

Why work with Deep Leverage Points?

Deep leverage points are small efforts that would facilitate enabling food security, well-being and resilience. However, Donella Meadows cautions that these “magical leverage points are not easily accessible, even if we know where they are and which directions to push them.” In her paper, Meadows identifies 12 places to intervene in a system. So where do we, public health practitioners, start on identifying these leverage points?

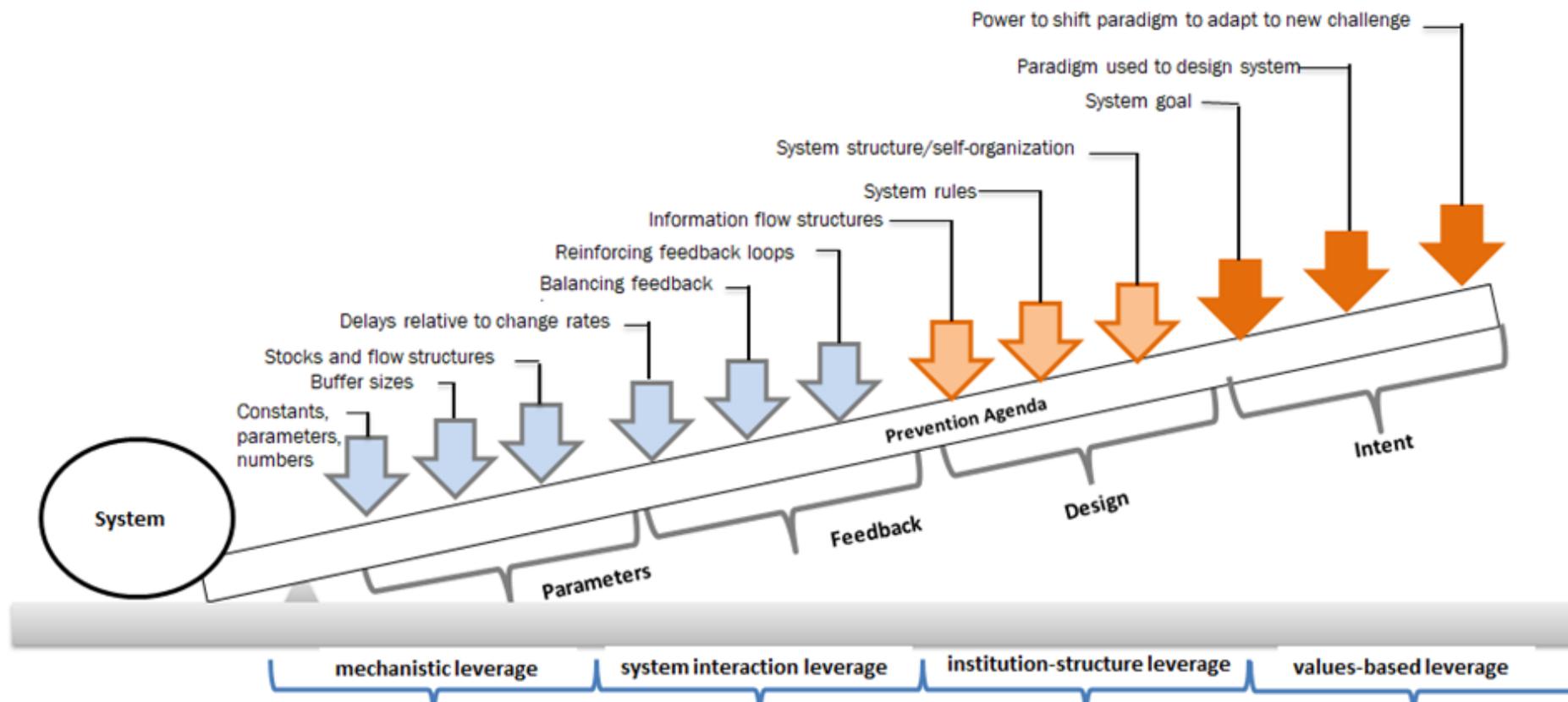


Figure adapted from Sjonvanthof, csl4d. Thinking in Systems. <https://csl4d.wordpress.com/2014/03/19/thinking-in-systems/>

From “Connecting the Dots” to “Finding Deep Leverage Points” in the Prevention Agenda

There is broad consensus that we need to influence social determinants of health, such as income, housing, and education, to improve public health. Yet many of us who facilitate creating conditions for people to be healthy in primary prevention are unsure about our roles, and how to go about doing this. In early 2019, with support from a Robert Wood Johnson Foundation grant through Institute of Healthcare Improvements 100 Millions Lives Initiatives, we embarked on engaging communities with an understanding of community wealth building across key public health systems related to food systems, housing and place-making. Our partners recommended focusing on a sector to enable deeper learning, rather than addressing all sectors at the same time. As food security and community wealth building are identified as a new goal and best practice in the Prevention Agenda, we decided to apply systems thinking within the context of these two issues.

How to Use the *Finding Deep Leverage Points Starter Kit*

These short activities can be considered as a “starter kit” for public health practitioners. It includes selected resources for practicing systems thinking taken from existing practitioners listed under the Reference section at the end of the playbook. Some activities have been tried by workgroup members, e.g. Building Community Wealth; identifying and writing narrative. The causal loop diagram was demonstrated but has not been used by partners, and activities such mapping mental models need to be tested. We will continue to adapt and add to this play book as we move toward integrating systems thinking in the context of food systems and community wealth building.

Start Here: (I) Understand leverage points, and what they are leveraging toward; (II) Describe the system, and roles within the system; and (III) Ways to explain the system

I. Leverage Points and Community Wealth

1. Why use systems thinking to address food security and community wealth building?
2. Build community wealth to end hunger
3. Understand different leverage points
4. Identify community wealth

II. System and Roles in the System

5. Draw the system
6. Identify power roles in the system

III. Ways to explain the system

7. Empathy Maps and Journey Mapping
8. Identify narratives
9. The Iceberg Model
10. Write and share narratives

IV. Share your journey experiences

There is lot of systems innovation. This is a “starter kit” for public health practitioners, and we will have opportunities to share our experiences. There is a lot more we can explore. . . .

Why use systems thinking to address food security and community wealth building?

Why Systems Thinking?

Systems thinking helps examine and understand the linkages and relationships among influencing factors. Food systems are complex and adaptive. Systems thinking can help in at least three ways. First, it offers a checklist of issues that should be considered across sectors. Second, it helps map the strengths and vulnerabilities in the system so resiliency can be strengthened and sustained. Third it helps determine factors to influence for optimal outcomes.

How do you know you are looking at a system or just a bunch of stuff?

- Can you identify parts?
- Do the parts affect each other?
- Do the parts together produce an effect that is different from the effect of each part?
- Does the effect, the behavior over time, persist in a variety of circumstances?

If you answered “yes” to all four, it is a system.

Can you think how these issues could be transformed into systems thinking?

Not Systems Thinking	Systems thinking
<i>Example: A family is not able to purchase fresh produce, so they get food coupons that would allow them to access fresh produce</i>	<i>Example: Look at community access to fresh food, transportation, social supports, capacity to prepare food, culturally appropriateness of food, agency/self-efficacy, leadership, ownership for mutual support – which ones would leverage achieving objectives directly or indirectly?</i>
Teach children what is healthy and not-healthy food	
A community member is embarrassed to ask for help, so another community member anonymously drops off a gift package of food outside the door	

Build community wealth to end hunger

Why community wealth building? Community wealth is more than money. It includes capitals or assets that belong to us that improve quality of life. Capitals are broadly classified in four categories: human (e.g. skills, health), social (e.g. trust, relationships); produced (e.g. finance, built infrastructure) and natural (e.g. land, water, air). Community wealth helps ensure food security; local and regional food systems play an important role in building community wealth.

1. Review Appendix 1 that describes the types of capitals or assets that build community wealth.
2. Use two colored post-it notes to correspond to forms of wealth you feel you are best at creating or impacting.

Human (pink)	Social (orange)	Produced (blue)	Natural (green)
Individual Intellectual	Social, Cultural Political	Financial Built Infrastructure	Natural

3. For each form of wealth, write a question about how to create that form of wealth.
4. Find someone who has the same color post-it (same form of wealth) as you do.
5. You can each share one story that illustrates how you create or impact that particular form of wealth.
6. Find someone (other than the person you spoke with in step 4) with a different color post-it corresponding to a form of wealth you want to learn more about.
7. Listen to that person's story of how they create or impact that form of wealth.
8. Now together, identify a strategy that will help each of you to create all four types of wealth.
 - What types of wealth in each category would you create?
 - What assets can you build on?
 - What steps would you take to be intentionally inclusive?
 - What new partnerships or linkages are needed?
 - What are some challenges that need to be addressed?
 - How would you address them?
 - If successful, what impact do you predict?
9. Summarize how this strategy compares with what you are doing now. If your efforts are tracking impact on all four capitals, you are off to a good start. If not, do you know how you get build these relationships?

Understand leverage points for building community wealth and enabling food security

Leverage points in a system are points of power where relatively minor interventions can lead to relatively major changes in certain outcomes. Donella Meadows identified and ranked 12 leverage points, places to intervene in a system. While this playbook is focused on finding deep leverage points, levers 1 to 4, it is helpful to understand all of them.

Below are 12 examples of system leverage points as described by Donella Meadows. Can you think of other examples based on your experiences?

System Leverage Points with example (e.g.)	Leverage Power	Examples of Levers for ending hunger and building food security. Circle those you are using currently.
Lever 1: Power to transcend paradigms <i>e.g. in a pandemic, health care is a right</i>	Deep	
Lever 2: Mindset/paradigm out of which systems arises <i>e.g. beliefs such as "health care is a right" are too expensive</i>	Deep	
Lever 3: Goals of the system <i>e.g. to maintain the power of a certain group</i>	Deep	
Lever 4: Self-organizing system structures <i>e.g. biodiversity, ecosystems that facilitate self-efficacy</i>	Deep	
Lever 5: Rules of the systems e.g. incentives/constraints <i>e.g. presidential terms, power over rules by courts</i>	Moderate	
Lever 6: Access of information flows <i>e.g. electricity consumption on the bill</i>	Moderate	

Lever 7: Gain around driving positive feedback loops <i>e.g. birth rates, interest rates</i>	Moderate	
Lever 8: Strength of negative feedback loops <i>e.g. exercise to fight anxiety</i>	Moderate	
Lever 9: Length of delays relative to system change <i>e.g. maturation rate of adolescents</i>	Shallow	
Lever 10: Strength of material stocks and flows <i>e.g. road systems, plumbing</i>	Shallow	
Lever 11: Size of buffer stocks, relative to their flows <i>e.g. inventory, acid absorption of soil</i>	Shallow	
Lever 12: Parameters <i>e.g. constants and parameters such as taxes, standards, subsidies</i>	Shallow	

Draw the System Using a Causal Loop Diagram

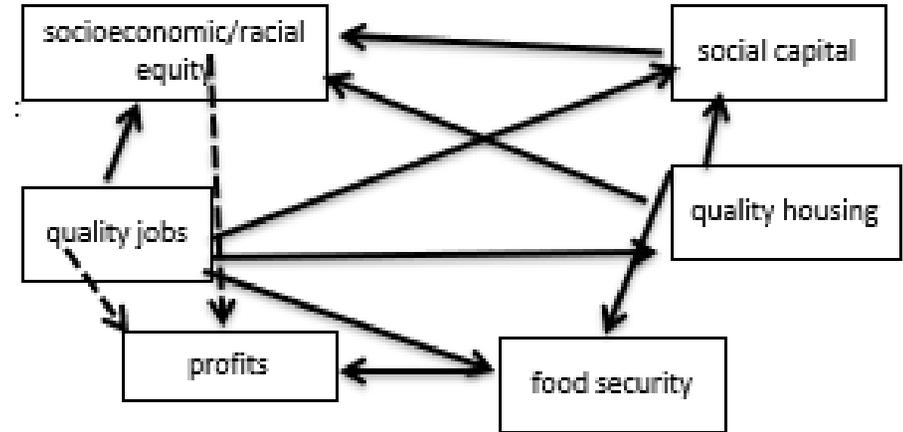
Why Draw the System: Drawing the system can illustrate the relationships and linkages between the elements that influence outcomes. It helps define boundaries. A causal loop diagram is one tool for illustrating the interrelationship of cause and effect from systems perspectives. It shows how distant actions can have a cascading effect. A causal loop diagram is a non-threatening approach to discussing changes in a system as the attention is not a particular person or organization. There are three steps to developing a causal loop diagram: Preparation, Drawing, and Interpretation. For this activity, the Causal Loop Diagram is discussed in the context of “Community Wealth Building for Food Security, Resilience and Well-Being.”

1. Preparation

- What is the purpose? *Example: To illustrate relationships those builds community wealth and ensure food security toward ending hunger.*
- Have you done a literature review on cause, effect and root causes on community wealth building for food security, resilience and well-being?
- What are cause and effect questions in the context of food security and hunger? Do these questions change when you add in community wealth building? Are the questions different when you think about it from the context of poverty reduction? What questions change?
- Where do you draw boundaries? You want to draw part of the system that is relevant to your purpose without being overwhelmed. When in doubt about including something, ask “If I were to double or halve this variable, would it have a significant effect on the issue I am mapping?” If not, it probably can be omitted. *Example: Public health practitioners work primarily on fresh produce access such as supporting farmers markets and fresh produce in food pantries, and some address food waste. While these initiatives may increase access to fresh produce, they do not lead to an understanding of building community wealth and resilience which would sustain fresh produce access initiatives. We need to understand governance structure, community agency, leadership and ownership. Hence boundaries should be from cradle to cradle of the food system.*
- Have you decided whether you are going to draw the system using software, manually or a combination of both methods? The Vensim© software is available free for personal use.
- Do you know the basic guidelines for drawing causal loop diagrams? The Systems Thinker offers useful tips such as:
 - Variable names should be nouns, rather than phrases (e.g. costs rather than increasing costs); measurable over time (e.g. well-being rather than state of mind), neutral and positive (e.g. growth rather than contraction or high growth).
 - Understand the difference between a balancing loop, which aims to change the system from the current state to the desired state (e.g. change from chemical to natural fertilizers for healthy soil, water and crops), and a reinforcing loop which drives growth (e.g. fertilizer in soil to more food crops). For every possible action, think through unintended consequences.
 - Arrows from a variable can travel in one direction.

2. Drawing the Causal Loop Diagram

- Draw the causal loop diagram by hand or use software (e.g., Vensim©).
- Identify 6-12 variables and make sure that the outcome is among the variables. Some variables can be collapsed or eliminated if they do not have strong associations with any of the other variables. Variables must be as explicit as possible and defined so everyone has a common understanding of the construct that is captured by the variable. This is important as it will assist with development of the causal loop diagram.
- Explore all possible relationships amongst the variables through the interrelationship digraph.
- Arrange the selected variables in a circle, place labels or “post-its” for every element involved in the issue.
- Pick one of the variables to start with and think about its relationship with each of the other variables in your circle. Consider the relationships in pairs.
- Use an "influence" arrow to connect related elements. The arrows should be drawn from the element that influences to the one influenced. If two elements influence each other, the arrow should be drawn to reflect the stronger influence.
- Arrows can only be drawn IN ONE DIRECTION. The relationship should be a direct relationship and not via another variable.
- Dotted arrows signify Balancing loops, or an inverse relationship.
- Some suggestions for making a Causal Loop Diagram easier to read:
 - Arrange the variables grouped near where they are likely to have more relationships.
 - Action can have short-term and long-term consequences. Draw loops with increasing radius as they progress from short- to long-term.
 - Collapse some variables to make the diagram less busy, or if the relationship arrows are going to cut across the diagram, have a notation indicating the variable is duplicated.



Partial interrelationship digraph showing variables (nodes), connections (edges), reinforcing loop (dark lines), and balancing loops (dotted lines)

3. Interpreting the Causal Loop Diagram

- Once you have examined all the possible relationships amongst the variables it is possible to identify the drivers and outcomes in the system. Count the arrows. Look at each variable and count how many arrows you have coming into that variable and how many you have going out. If you are using VENSIM or PowerPoint, you can rearrange your circle so that the drivers are toward the bottom and the outcomes at the top.
- Variables with more arrows coming in than out are outcomes; those with more arrows going out are drivers.
 - The elements with the most outgoing arrows will be "root causes" or "drivers."
 - The ones with the most incoming arrows will be key outcomes or results.

Roles and Expectations Canvas

Why clarify roles and expectations? Identifying, clarifying, adapting and understanding roles and expectations is a challenge even in our existing positions. Many of us have multiple roles. When we add the complexity of building community wealth for food security, resilience and well-being, it can be complicated. Understanding roles and expectations strengthens teamwork, helps each person in the team work more effectively, and builds resilience when adapting to new roles. Use this three-part activity to facilitate the dialogue.

1 Identify your role(s)	1. Clarify role and expectations	3. Explain your role(s)
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1. Circle your role(s) from the list below or add your own:

Complete boxes 1, 2 and 3 in the Mapping Canvas

Administrator	Advocate (policy)	Aggregator	Coordinator	Communications Partner	Community Leader	Cooperative Development Partner
Demand Partner (Customer)	Environmentalism	Faith Partner	Funder	Grower (rural or urban)	Health care partner	Nutritionist
Outreach coordinator	Partnership builder	Planner	Public health partner	Researcher/Analyst	Marketing Partner	Trainer/Educator

2. Clarify roles and expectations using the Mapping Canvas (box 4)

- a. Reach out to two colleagues you work with in your current positions, and ask what roles of expected of you.
- b. Now, ask two practitioners in areas related to community wealth building and food security, and ask what roles of expected of you.
- c. Now think through what you expect of them.
- d. After you have completed Box 4, look at your roles to see what had changed and what has remained the same.
- e. Discuss your reasons for changing or not changing with your colleagues.

3. Explain your roles considering expectations

1. Goals for initiative you are working on are: (*preferably should be outward facing goals e.g., to end hunger in my county*)

2. Roles of people you interact with are:

3. Your current roles include:

4. Expectations – Yours and others:

Who to ask?	What do they expect of you?	What do you expect of them?	Questions you have . . .

5. Role(s):

Role Expectation Mapping Canvas

6. Date Completed:

Empathy Maps and Journey Mapping: Two Tools for Understanding and Adapting Mental Models

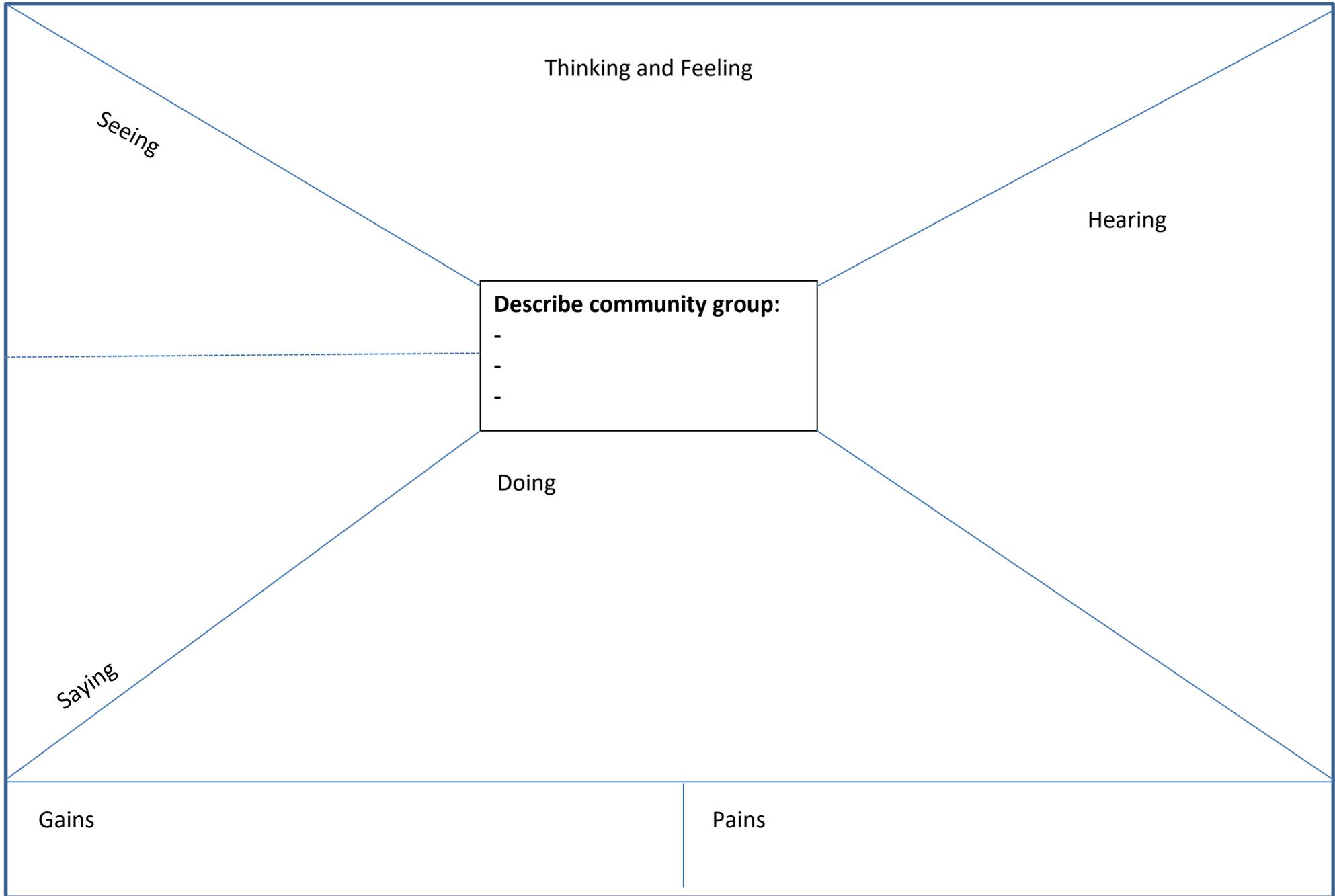
Why are mental models important?

Mental models are frameworks for how we explain complexity in the world. They are based on beliefs and values, and often incomplete. They influence how we think and make decisions. If our mental models are incomplete, and we make decisions based on these incomplete models, our decisions may be missing critical points. According to Donella Meadow, understanding mental models and adapting mental models are deep leverage points.

Many of us are unaware of our mental models because we use them subconsciously. There are many tools to map mental models. Of these, three are described in this playbook: Empathy Maps, Journey Mapping and the Iceberg Model. We will add to these as we get better at systems thinking.

- An **empathy map** is a very quick tool to assess what you know about the community group you are trying to reach. This empathy map can be used as a way to think through mental models and the policy design process.
- The **journey map template** can be filled out on wide newsprint paper by the team to explore current mental models and opportunities for action.
- An **iceberg model** is a systems thinking tool designed to help an individual or group discover the patterns of behavior, supporting structures, and mental models that underlie a particular event or series of events.

Empathy Mapping Template



Community Member Journey Mapping Template

	Identify and list produce needed	Produce needs available and accessible	Purchase produce	Transport it home	Prepare produce	Able to do so consistently over the year	Capacity to measure health and well-being
Actions							
Questions							
Happy Moments							
Pain Points							
Opportunities							

The Iceberg Model



Parts	Your comments
Events What is happening?	
Patterns of behavior What trends are there over time?	
Systems Structure How are parts related? What influences patterns?	
Mental Models What values, assumption and beliefs shape the system?	

Identify a Community Wealth Building Narrative

To find a Community Wealth Building narrative, look for the SWIRLS. Jot down the SWIRLS.

See the SWIRLS?	NOTES
<ul style="list-style-type: none"> <li data-bbox="86 349 1045 446">☑ Systems lens: What are the interdependent elements in the system working toward a common goal? <li data-bbox="86 495 1045 592">☑ Wealth is more than money: What human, social, produced, and natural capitals are invested and created? <li data-bbox="86 641 1045 738">☑ Invested in relationships and collaborations: How did people, structure or organizations assist? <li data-bbox="86 787 1045 885">☑ Rooted locally through ownership/control: How do we see local community leadership or ownership of assets? <li data-bbox="86 933 1045 1031">☑ Livelihoods: What intentional actions improve livelihoods of traditionally marginalized communities? <li data-bbox="86 1079 1045 1177">☑ Strategic: Which partnership, organization or leader is expressing vision through actions? 	

Sixteen Questions to help with developing the Community Wealth Building Narrative

How did you link your enterprise with market demand?

(Systems Lens, Strategic)

- What is the need in the community?
- What was your innermost motivation (probe for values)?
- What are the human, social, natural, and produced assets in demand?
- What are gaps, barriers and/or bottlenecks you experienced?

What Community Catalysts facilitated you to move forward?

(Wealth is more than money and Invested relationships)

- What human, social, natural, and produced capitals did you build on?
- How did you build relationships?
- How did your supporters and partners help you?
- What assets did you start with?

How did you pull the enterprise together?

(Rooted in local ownership and control)

- What were your goals?
- What did you learned about creating demand for products/by-products?
- What strategies are you using?
- How do you track progress and impacts?

How is the enterprise improving livelihoods and being intentionally inclusive?

(Livelihoods impacted)

- What has the enterprise gained in human, social, natural and produced capitals?
- How is the enterprise intentionally inclusive?
- What are some important lessons that you have learned?
- What are your dreams, and where do you see further potential for collaboration?

Writing the narrative: For flow, recommend organizing the piece by: Demand; Catalysts; Pulling it together; Improving livelihoods/being inclusive.

Examples of narratives at:

https://www.citsci.org/CWIS438/Browse/Project/Project_Info.php?ProjectID=2288&WebSiteID=7

Adapted from WealthWorks Guidance for Story Tellers.

<https://www.wealthworks.org/sites/default/files/resources/Guide%20for%20Storytellers.pdf>

When we are writing narratives, we are engaging with communities to build relationships and trust. Narrative writers can use a reflective tool, [The Meetr](https://meet.in/) (<https://meet.in/>) as we work collaboratively with communities before, during and after writing the narratives to measure building of relationships, trust and other intangibles.

Share Your Experience on the journey toward finding deep leverage points

Prevention Agenda Priority	Date Created:
Goal	Liaison:
Background: <i>Why are you doing this?</i>	Results: <i>What happened? Qualitative & Quantitative Data</i>
Questions: <i>What questions are you exploring? Toward what purpose?</i>	Insights: <i>What does it mean for your learning goal? What can you prove or infer?</i>
Details: <i>Why? What will you do? Who? Where? How?</i>	Next Action Item: <i>What would be valuable to learn about next?</i>

References

Introduction: Finding Deep Leverage Points

Abson DJ, Fisher J, Leventon J, Newig J, Vilsmaier U, von Wehreden H, Abemethy P, Ives CD, Jage NW, Lang DJ. “Leverage points for sustainability transformation.” *Ambio* vol. 46,1 (2017): 30-39. doi:10.1007/s13280-016-0800-y. The authors classified leverage points identified by Donella Meadows according to their potential for system-wide change and sustainability transformation.

Meadows, Donella. *Thinking in Systems: A Primer*. 2008. In 1993, Donella (Dana) Meadows completed a draft of the book. The manuscript was not published at the time, but circulated informally for years. Dana died quite unexpectedly in 2001—before she completed the book. The book was published by the Sustainability Institute. A pdf version of the book is available at: http://www.ecf.utoronto.ca/~miller/Meadows_2008_Thinking-in-Systems.pdf

Meadows, Donella. *Leverage Points: Places to Intervene in a System* in “Thinking in Systems.” After many years of working with complex systems, Dana Meadows distilled what she had learned into a concise list of places within a complex system where a “small shift in one thing can produce big changes in everything.” <http://donellameadows.org/archives/leverage-points-places-to-intervene-in-a-system/>

Williams B and van Hof S. *Wicked Solutions – A Systems Approach to Complex Problems. A Workbook*, 2nd edition. 2016. Published by Bob Williams. Ebook at <https://writing.dawsoncollege.qc.ca/wp-content/uploads/2018/10/Wicked-Solutions-Second-Edition.pdf>

Why Systems Thinking?

Institute of Play: *Design Pack – Systems Thinking*. Version 1.0. 2013. From the experts in systems thinking and learning at Quest Schools, this design pack is full of tools and resources you’ll need to begin or expand the integration of systems thinking into your classroom. https://cdn-educators.brainpop.com/wp-content/uploads/2014/07/IOP_QDesignPack_SystemsThinking_1.0.pdf

Oxfam. *Systems Thinking for Oxfam Programme Staff*. October 2015. The major development and humanitarian challenges of the twenty-first century are highly complex and inter-related. Climate change, globalized markets and financial systems, and the evolution of networked forms of conflict are all examples of complex systems that underlie development problems. They are made up of a complex myriad of human and natural processes, institutions and relationships. ‘Systems thinking’ tries to take into account the interactions between different parts of a system and understand how together they are effecting change rather than simply trying to understand specific components in isolation. <http://www.mspguide.org/sites/default/files/resource/ml-systems-thinking-151020-en.pdf>

Community Wealth: Types of Capitals

WealthWorks. The Aspen Strategies Group. *Eight types of capitals*. Organizes and describes resources under eight types of capital <https://www.wealthworks.org/sites/default/files/resources/theeightcapitals.pdf>

The Organisation for Economic Co-operation and Development (OECD). Measuring Well-being and Progress: Well-being Research. Identifies four categories of capital in the Framework for Measuring Well-Being and Progress based on the recommendations made in 2009 by the Commission on the Measurement of Economic Performance and Social Progress. Similar to WealthWorks eight types of capitals, except that “Individual and Intellectual” are consolidated into human; “social, political, cultural” are consolidated into cultural; and “financial and infrastructure” are consolidated into built. <https://www.oecd.org/statistics/measuring-well-being-and-progress.htm>

What are leverage points for building community wealth building and enabling food security?

Leverage Points: Places to Intervene in a System. Classic paper, and a chapter in the book “Thinking in Systems.” After many years of working with complex systems, Dana Meadows distilled what she had learned into a concise list of places within a complex system where a “small shift in one thing can produce big changes in everything.” <http://donellameadows.org/archives/leverage-points-places-to-intervene-in-a-system/>

TEEBAgriFood ‘Scientific and Economic Foundations’ **report** (2018): The TEEBAgriFood ‘Scientific and Economic Foundations’ report addresses the core theoretical issues and controversies underpinning the evaluation of the nexus between the agri-food sector, biodiversity and ecosystem services and externalities including human health impacts from agriculture on a global scale. It argues the need for a 'systems thinking' approach, draws out issues related to health, nutrition, equity and livelihoods, presents a [Framework for evaluation](#) and describes how it can be applied, and identifies theories and pathways for transformational change. <http://teebweb.org/agrifood/scientific-and-economic-foundations-report/>

The Economics of Ecosystems and Biodiversity (TEEB) (2018). Measuring what matters in agriculture and food systems: a synthesis of the results and recommendations of TEEB for Agriculture and Food’s Scientific and Economic Foundations report. Geneva: UN Environment. <http://teebweb.org/agrifood/measuring-what-matters-in-agriculture-and-food-systems/>

FAO. Concept and Framework: A technical brief on the sustainable food systems concept and framework, this document reflects the three first-day modules of the FAO food systems/value chains training program. <http://www.fao.org/policy-support/resources/resources-details/en/c/1160811/>

Draw the System using a Causal Loop Diagram

Systems thinking: an approach for understanding ‘eco-agri-food systems’. Chapter 2 in TEEB for Agriculture & Food: Scientific and Economic Foundations. Geneva: UN Environment. <http://teebweb.org/agrifood/scientific-and-economic-foundations-report/>

Kim Daniel. The Systems Thinker. Guidelines for drawing causal loop diagrams. Includes helpful suggestions on the mechanics of creating causal loop diagrams. <https://thesystemsthinker.com/guidelines-for-drawing-causal-loop-diagrams-2/>

Draw the System using a Causal Loop Diagram (contd.)

Alliance for Health Policy and Systems Research, the World Health Organization and Columbia University Mailman School of Public Health. (2015) Participant Guidelines. Systems Tools for Complex Health Systems: A Guide to Creating Causal Loop Diagrams. https://www.who.int/alliance-hpsr/resources/publications/CLD_Course_Participant_Manual.pdf

Ventana Systems Vensim Software: Vensim is simulation software developed by Ventana Systems. It primarily supports continuous simulation, with some discrete event and agent-based modelling capabilities. It is available commercially and as a free "Personal Learning Edition."
<https://vensim.com/>

Roles and Expectations Canvas

Mintrom, Michael (2019) So you want to be a policy entrepreneur? Policy Design and Practice, 2:4, 307-323, DOI: 10.1080/25741292.2019.1675989

O'Halloran, Tony. Nomad, Role Expectation Mapping Canvas (2018). Allows team members to discover their mismatched expectations interactively in the room, as opposed to going through an interview process <https://nomad8.com/articles/role-expectation-mapping-canvas>

Janlen, Jimmy. Crisp's Blog. Based on a series of workshop that explores, clarifies and establishes which expectations members of a group, team or project have on each other. <https://blog.crisp.se/2014/03/11/jimmyjanlen/role-expectation-mapping>

Wealthworks. Wealth Works Value Chains: Roles of the Coordinator Team.
<https://www.wealthworks.org/sites/default/files/resources/Coordinator%20Roles%20Handout.pdf>

Empathy Maps and Journey Mapping: Two Tools for Understanding and Adapting Mental Models

Brignull, Harry. How to run an empathy and user journey mapping workshop. Empathy and user journey mapping help stakeholders to think about user needs effectively, identifying pain points and opportunities in a systematic and straightforward way. <https://medium.com/@harrybr/how-to-run-an-empathy-user-journey-mapping-workshop-813f3737067>

Identify a Community Wealth Building Narrative

WealthWorks Guidance for Story Tellers. Adapted for storytellers on community wealth building. It describes a template for sharing the narrative. <https://www.wealthworks.org/sites/default/files/resources/Guide%20for%20Storytellers.pdf>

Sixteen Questions to help with developing the Community Wealth Building Narrative

Narratives on community wealth building; Has examples of narratives and link on community wealth building at:
https://www.citsci.org/CWIS438/Browse/Project/Project_Info.php?ProjectID=2288&WebSiteID=7

Adapted from WealthWorks Guidance for Story Tellers. WealthWorks Guidance for Story Tellers. Adapted for storytellers on community wealth building. It describes a template for sharing the narrative

<https://www.wealthworks.org/sites/default/files/resources/Guide%20for%20Storytellers.pdf>

Meetr, a tool to measure value of engaged journalism: Narrative building are working on similar work as journalism. This tool, a collaboration of the Agora Journalism Center at the University of Oregon's School of Journalism and Communication and the Engagement Lab at Emerson College in Boston, helps narratives builders to understand the value of their work. <https://meetr.in/>:

The Journey – Sharing Experiences

Experimentation Field Guide created for Monash University by Sam Rye (2019); It is helpful to see how sharing journeys as illustrated in this guide help the learning process. Read chapter on experimental process. <https://mada.gitbook.io/experimentation-field-guide/>

Glossary

Assets: Assets are entities that must be owned by some unit, or units, and from which economic benefits are derived by their owner(s) by holding or using them over a period of time.¹

Capitals: Capitals are assets, and may be human, natural, produced or financial.^{1,2}

- Human capital is productive wealth embodied in labor, skills and knowledge.
- Natural capitals are natural assets in their role of providing natural resource inputs and environmental services for economic production.
- Produced capital includes financial assets and infrastructure, the system of public works in a country, state or region, including roads, utility lines and public buildings.
- Social Capital are “networks together with shared norms, values and understandings that facilitate cooperation within or among groups”.

Community Wealth Building: Community wealth building is a means of action that increases quality and quantity of wealth (human, social, produced and natural), local ownership and control of wealth, and livelihoods of people in communities, intentionally including those on the economic margins so they part of the mainstream.^{3,4,5}

Causal Loop Diagram: A causal loop diagram is one tool for illustrating the interrelationship of cause and effect from systems perspectives.

Feedback Loop: A feedback loop defines a relationship of interdependency between two or more components where the change in state of one element affects that of another, with this effect then, in turn, feeding back to alter the source element.⁶ Feedback loops can be negative (Balancing Loop) or Positive (Reinforcing Loop).

Balancing Loop: A negative feedback loop represents a relationship between two variables where increase in one may increase the other which in turn cause a degree in the first variable. Example: human metabolism – when a human is hungry, metabolism slows down to conserve energy allowing the human to continue living with less food.

Reinforcing Loop: A positive feedback loop represents a relationship between two variables where increase in one increases the other which in turn increases the first variable. Example: blood clotting, when we bleed it cause platelets to be released to the injury site, and they continue to be produced until the bleeding has stopped.

¹OECD. Glossary of Statistical Terms. <https://stats.oecd.org/glossary/index.htm>

²TEEB, The Economics of Ecosystems & Biodiversity. Glossary of Terms. <http://www.teebweb.org/resources/glossary-of-terms/>

³Wealthworks. Explore Regional Wealth Building. <https://www.wealthworks.org/basics/explore-regional-wealth-building>

⁴Shared by the City of Rochester NY Mayor’s Office of Community Wealth Building. <http://www.cityofrochester.gov/wealthbuilding/>

⁵Democracy Collaborative. Community Wealth Building. <https://democracycollaborative.org/democracycollaborative/local-economies/Stronger%20local%20economies>

⁶Systems innovation. Economic Feedback Loops. <https://systemsinnovation.io/economic-feedback-loops/>

Food Security: All people, at all times, must have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life.⁷

Prevention Agenda: The Prevention Agenda 2019-2024 is New York State’s health improvement plan, the blueprint for state and local action to improve the health and well-being of all New Yorkers and to promote health equity in all populations who experience disparities.⁸

Resilience: Resilience is the capacity to cope with stress, overcome adversity, and thrive despite challenges in life. Resilience and Well-being are linked, in that, quality of life (well-being) depends on a certain amount toughness, ability to cope with stress and adversity.^{9,10}

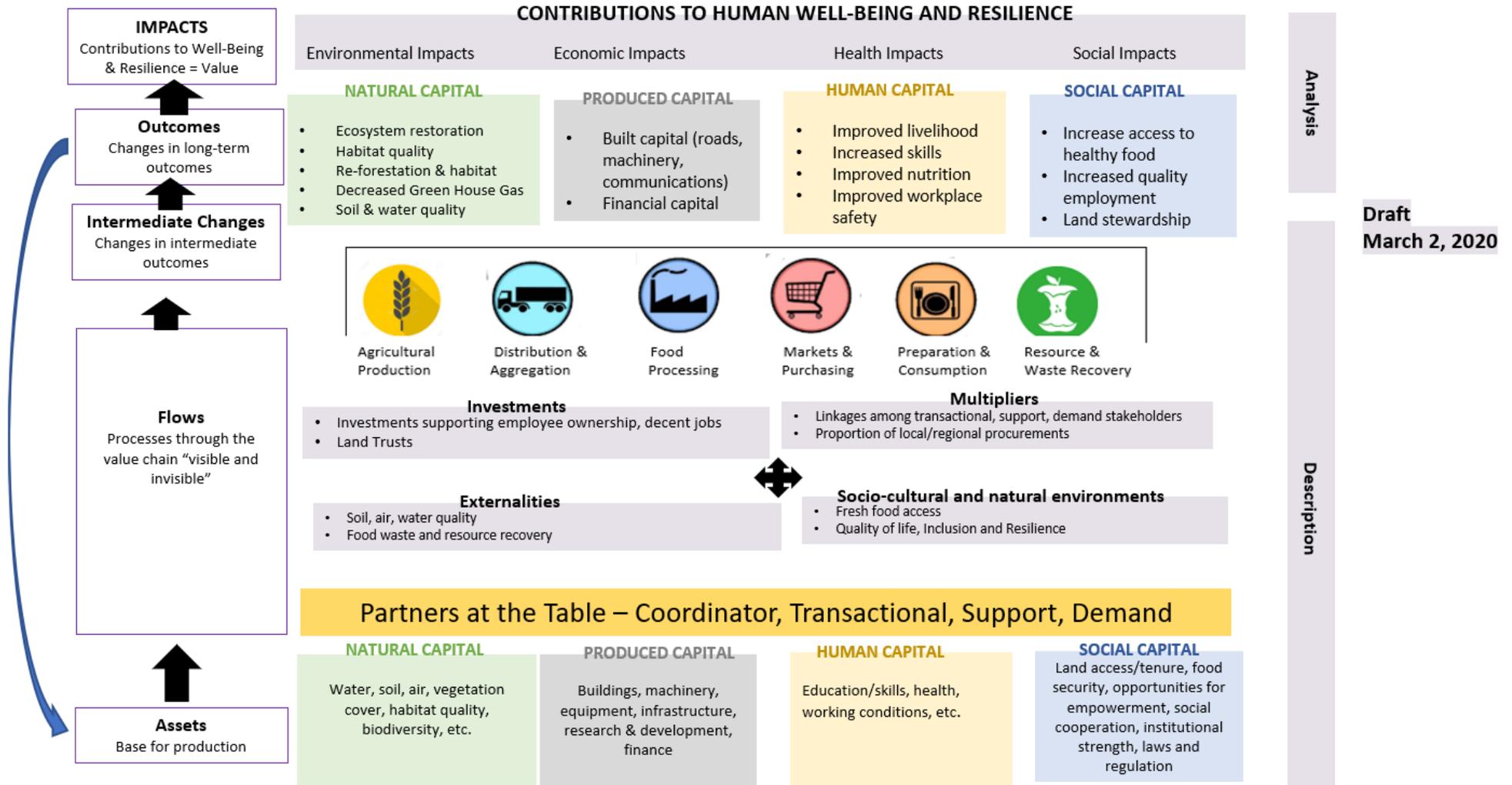
⁷ 1996 World Food Summit. <http://www.fao.org/WFS/>

⁸ NYSDOH. Prevention Agenda 2019-2024: New York State’s Health Improvement Plan. https://www.health.ny.gov/prevention/prevention_agenda/2019-2024/

⁹ Prevent Child Abuse America and KPJR Films. Resilience. The Biology of Stress and the Science of Hope. <http://preventchildabuse.org/wp-content/uploads/2016/09/Resilience-Guide-FINAL.pdf>

¹⁰ The Young Foundation. Nguni N, Bacon N, Brown JF. The well-being and resilience paradox. <https://youngfoundation.org/wp-content/uploads/2012/10/The-Wellbeing-and-Resilience-Paradox.pdf>

Appendix 1: Food Security and Community Wealth Building Evaluation Framework



Adapted from [The Economics of Ecosystems and Biodiversity \(TEEB\)](#) (2018). TEEB for Agriculture & Food: Scientific and Economic Foundations. Geneva: UN Environment & Framework from FAO [Sustainable Food Systems. Concept and Framework](#) (2018)