Community Resilience Reader

Introduction

The definition of resilience in the book is the ability of a system to cope with short-term disruptions and adapt to long-term changes without losing its essential character. A crisis is an unstable state of affairs in which decisive change is both necessary and inevitable. According to the book, four major crises (environmental, energy, economic and equity, or E4) threaten our resilience. This book seeks to answers questions regarding how to assess what we need resilience from and how to build it.

A premise of the book is that we are moving from having our resilience challenged, to being in a state of crisis. This can be seen in our ecosystems, our industrial society, our economies, and in globalization efforts. Bouncing back and forward from these crises requires resilient thinking and action at global level and is based on the following assumptions: approaches must be grounded in critical thinking, systems literacy is essential, sustainability and resilience are distinct but complementary concepts, building resilience requires place-specific adaptation, and communities are the ideal level of focus to build resilience.

Ch.1

Opens with a powerful quote from Doria Robinson "How do you know community resilience when you see it"?

Resilience thinking should be grounded in what we value, which varies from place to place. Retaining identity is critical and resilience science considers integrated social and ecological processes. A community system is complex and adaptive, not static and are found in both rural and urban areas. Resilience building should happen at the community level, where community is thought of as a place-based group of people who have some meaningful capacity to influence their basic common needs given their particular social and political context, and stakeholders have power in decision-making that affects them.

Q. What are the challenges and opportunities for community-based decision-making lead to equitable outcomes?

The six foundations for essential for resilience building efforts include: 1) People and power for them to envision the future of their community. This foundational pillar is rooted in social-identity and recognizing the importance of a shared and diverse community, 2) Systems thinking and the ability to consider the complexities and interrelated crises occurring in a community. Community crises are complex and cannot be approached as linear problems and must include boundaries, 3) Adaptability is an ongoing process and requires responding to change and learning from the process, 4) Transformability is essential when challenges require more than adaptation, 5) Sustainability is a guiding light for resilience and must be rooted in a

long-term vision that considers future generations, and 6) Courage to tackle complex challenges in an effort to achieve resiliency and sustainability.

Q. Other communities at different times have had crises of resilience and sustainability. What can we learn from them? How did they overcome and bounce forward?

Part I
Chapter 2.

What does the author mean when she says, "Nature does not simply provide for humans needs; it also informs us, and it is important that we pay attention"? p. 46. Connect this back to the six foundational pillars.

Explain what the author means when she says the loss of the planet's biodiversity is "a worrying bellwether of instability in the earth's processes that sustain human life"? p. 49

The International Geosphere-Biosphere Programme (IGBP) shows the integration codependence of the earth's systems and confirms 1) There is a marked acceleration of conditions that are causing environmental adversities around the world, 2) Humans are at the helm of such acceleration, and 3) We are in a global crisis.

Pages 51-52 provide evidence and support of these statements, and show that exponential world population growth is a main driver and that humanity's global ecological footprint well-exceeds world biocapacity. More people have resulted in the harmful effects of the green revolution, which is pushing the world past its thresholds and its "safe operating space" (P.56).

Q. Explain the concept of the nine planetary boundaries and apply the concept of the whole being greater than the sum of its parts.

Cascading impacts can be seen in from the Arctic to oceans around the world, resulting in detrimental effects on wildlife, water sources, and humans.

Q. If environmental pressures are cumulative and interactive, explain why we often measure impacts and make action steps that are static and singular in nature?

Why do we need the planet to be resilient? How will that help serve us? Why does it behoove us to make sustainable decisions?

Ch. 3

Energy extraction has followed the low-hanging-fruit principle.

Explain the pyramid of fossil fuel resource volume versus resource quality (Fig. 3-1. P. 67).

Climate change and energy depletion will lead to calamity if not addressed adequately.

Oil is largest energy source, delivering approximately 33% of energy used globally, followed by coal (which is the most carbon-intensive form of energy), and then natural gas.

Nuclear power generates approximately 4% of the world's energy, and the uranium needed to create nuclear energy may hit peak production by 2030. In addition to being extremely costly to develop and run, the development of new technologies is thought to be decades away.

Wind supplies approximately 1.5% of total world energy, but is the cheapest form of energy and is renewable, but needs to be better integrated. Other renewables include hydropower, solar, biomass and biofuels, and geothermal and each come with their own challenges and limitations. This raises the question: If we need to shift away from nonrenewable, resource-extractive energy, what alternatives could be most quickly and cheaply be used? (p. 72) The most pressing challenges will be found in the costs associated with adapting our systems and creating new, more efficient energy systems. Fossil fuels are needed to help offset the cost of the transition and as energy needed to create new infrastructure and technologies. It is difficult to predict how much energy we will need. We can consider ecological footprints. Efforts to transition now will help us from an energy collapse later.

Why does the author say there is little evidence that the energy crisis is being taken seriously? (p. 76).

Is it too late to be proactive? Is proactivity necessary?

Ch. 4

This chapter explains why ecological factor are more limiting than geophysical ones. Do you agree or disagree with this sentiment?

The author states that the greatest threats to the global ecosystem are agricultural production and fossil fuel use, and the increased reliance on fossil fuels coupled with constant economic growth has brought us to a global crisis. Diverting from our current course requires us to transform our economy to one that does not exceed our planetary boundaries yet remains capable of satisfying basic human needs (p. 81).

This chapter explores that concept of feedback loops, thresholds and raises questions about resiliency as we approach such thresholds. On p. 83, the author states that long-term resilience of the economy requires a reduction in resource use and waste emissions, but such economic contractions impose unacceptable human costs. We must go through transformative processes, but these will result in "black-swan" events. To avoid unacceptable human suffering and accompanying instability, we must prioritize basic needs, such as essential resources (like food) and essential ecological processes. This requires a communal effort, and right now, the market economies reward and/or assume self-interest and are not suited to build resilience. Free markets, like our current economy, do not align with the planet's ecological constraints or are not built to meet the long-term needs of humanity because of 1) externalities, which are the unintended impacts and costs of actions; 2) inequity of purchasing power, which leads to waste and unjust access to basic resources; 3) a lack of cooperation, which leads to self-interest and selfishness (e.g. prisoner's dilemma), and 4) the special role of technology, that hinders resilience due to oppressive costs and lack of access.

The good news is that we are capable of cooperation and that renewable energy moves us away from competing with one another, because there is enough of this energy to go around. A

resilient economy requires cooperation and altruism. Cooperation can be promoted through punishment, reciprocity and group formation.

Q. Describe first steps in developing a resilient economy that can meet basic needs of the planet and its people.

What incentives would work best for you to cooperate with others? Explain.

Ch. 5

Capitalism dominates the global economy and is, in part, responsible for equity challenges worldwide. Extractive capitalism relies on extractive resources and creates sacrifice zones used for profit, and often result in the exploitation of the region's people, or a hierarchy of people. The New Deal of 1932 put a "brake" on such exploitation, but it promoted racism by excluding people of color. In the US, economic inequality is at an all-time high and "the higher up the income ladder, the more concentrated the wealth is among a small number of people" (p. 97). Economic inequality creates political inequality and the playing field is tilted towards the corporate elite, which expands the sacrifice zones. Due to a disparity in wealth and poor, the poorest countries bear the greatest burdens of climate change and citizens find themselves without food, water and/or shelter. The upper elite in the US may agree that climate change is real, but because of their resources, they see it as a manageable problem.

Quote: "We're still blind, despite all the science, to the fact that wealth in the world depends on the health of the planet". (p. 101)

The middle class was built on the shoulders of the disenfranchised and denial of our global crisis is an elite privilege. Addressing the E4 crisis requires valuing all humans equally.

"The communities exploited by the fossil fuel extractivism are almost always those most affected by poverty and racial discrimination" p. 103 People of color are much more likely to live in sacrifice zones than white people. However, in places like Appalachia, poor whites have suffered from this type of extractive-based economy. It is possible to have good paying jobs that promote a healthy environment, but not under the current system. Just Transition integrates the interests of the labor and environmental movements and looks to create a more balanced economy. There is resistance in the US to transitioning away from an extractive-based economy, but other countries, like Germany are actively transitioning. There are examples of communities in the US are self-organizing away from fossil fuels.

Why do we need reconnect with one another before we can successfully transition to a more sustainable economy?

Ch. 6

Why are Homo sapiens called "the rogue species" and why does the author think this description is incorrect. Find a current event that illustrates the author's point of view.

The author asks can we avoid ignominious collapse. What are the arguments for and against this question?

Humans are large warm-blooded animals that have creative intelligence and have been able to invade most of the habitat on earth. Are we exceptional in this way? Support your answer.

The author describes Homo sapiens as a conflicted species. Explain the author's thought process and whether you agree or disagree with the argument.

Evolution, religion, politics, culture, hormones, chemistry, etc. help explain why we are the way we are. Explain the role of social construction in defining our individuals and collective realities.

Can you teach an old dog new tricks and how does that saying relate to how we respond to a changing climate?

The author explains that due to unmanageability, top-down centralized control is doomed for failure and that sustainability lies, in part, in decentralized forms of governance, which cannot become "too big to fail".

Humans are part of the environment, and environments are shocked, collapse, and adapt. The author claims that societal collapse is inevitable. How well prepared are we to adapt? The author acknowledges that "our existence is proof that primitive emotion and survival instincts have served as well', but should we and will we our intellectual power and collective reasoning to adapt to a changing climate?

Part II

Ch. 7

The core concept of systems thinking is feedback. Understanding feedback dynamics can help us understand reinforcing and regulating feedback loops. The author makes the distinction that while things run in cycles, we should consider Donna Haraway's comment that "Everything is not connected to everything…everything is connected to something". (p. 133) Feedback loops can help us create purposeful behavior (see fig. 7-2, p. 135). Addressing today's challenges requires purposeful behavior.

Understanding social patterns (like the 80/20 rule) helps us see the whole, rather than just the parts of society, and the patterns that emerge from feedback loops. Wendell Berry advocated "solving for pattern" (p. 139) as a way to address emerging problems.

The author summarizes a systems perspective for practices for purposeful change on pp. 140-141 and ends by saying we are capable of designing resilient systems.

Ch. 8

This chapter provides an overview of the concept of sustainability and discusses that a key aspect of sustainability is the interrelatedness of ecological, economic and social dimensions and that problems cannot be fixed in isolation. This perspective is supported is supported by the Brundtland report. These dimensions are considered "the triple bottom line" or the three E's. While these three dimensions are interconnected, the author states that the driver of all change is economic. Ecological economics considers the interconnectedness of ecology and economics and considers both human and natural capital.

There is a reference to the Tragedy of the Commons and discusses governance of common resources. The author describes commons as "evolving social contracts" that are resilient, even though the system may look "messy". P.152

Sustainability is a system science and needs to consider carrying capacity. We already overshoot the earth's carrying capacity, which means we are not living sustainably. To avoid overshoot, we need to maintain our ecosystems, use renewable resources at a rate at which they can be replenished, use nonrenewable resources no faster than they can be replaced by renewables, and emit wastes no faster than they can be safely assimilated.

What is the relationship between an area's carrying capacity and its ecological footprint? Understanding our carrying capacity and ecological footprint is increasingly important as we begin the Anthropocene epoch and the stability of the Holocene will likely diminish. To address this, we can identify the global boundaries that is safe to live within and will help create a "Holocene-like state" (p. 156). The author describes the nine planetary boundaries and explains that we have already crossed the thresholds for the climate change, biodiversity loss, and nitrogen production boundaries.

To be resilient, we must have the following traits: self-organizing, diversity, redundancy, and connectivity.

Explain are resiliency and sustainability frameworks complementary?

Give an example of Charles Redman's quote "Sustainability prioritizes outcomes; resilience prioritizes process". (p. 157)

Explain how consumption and human population growth create wicked problems. Provide an example.

Ch. 9

This chapter provides an overview of resilience thinking – the science of resilience. The foundation of resilience is the idea of bouncing back and it has a "you-know-it-when-you-see-it" feel. Essentially, can systems retain identify after disturbance? Systems are made of interactive and interconnected parts and a resilient system can respond to change, add new parts and work with new parts. Similar to the previous chapter, the author describes the important roles of thresholds play in a resilient system. These thresholds may be known and unknown and resilient systems need the capacity to deal with both. The author explains that factors like diversity, openness, and tightness of feedback loops are enhance resilience (p. 170). Sometimes systems need to be transformed, and successful transformation requires getting past denial, creating new options, and having the ability to put options into practice. Systems need to adapt to changes around them, just a as forest does after a forest fire. See Figure 9-3 for more explanation on the adaptive cycle (p. 173).

Self-organizing systems have different scales that go through adaptive cycles, which are linked. Understanding thresholds, identity and linkages in a system requires stakeholder involvement.

Resilience planning has stakeholders describe, assess and manage their systems. This is a process of engaging the system rather than taming it.

Ch. 10
Explain what the author means by the quote "The loveliness emerging from nature is a mark of resilience"? (p. 180)
Resilience requires everyone to care, go beyond self-interests, and look for and promote the good in their surroundings. Community resilience also requires learning from nature and being able to live in flux. The author states that the foundation of resilience is people and requires collaboration.
Relocalization is decentralizing the scale of today's communities and promoting smallness.
Bioregionalism is based in resilience thinking and is deeply embedded in place identity theory and the importance of sense of place.
Growing through crisis takes courage and the willingness to go beyond linear thinking.
Community resilience requires individual resilience and cultural repair.

Part III
Ch. 11
Energy democracy goes beyond transitioning to renewable energy, with its foundation rooted in social and environmental justice. This a complex and integrated topic that requires a multi-faceted approach to problem solving.
Q. What do the authors mean when they explain the struggle to transform the energy system is a struggle for democracy?
The authors argue that to achieve energy democracy, energy resources need to be controlled by the people, not corporations. The energy democracy movement seeks to shift energy ownership from corporate-owned hands to the hands of system that considers race, class, and gender issues (among other things). According to the authors, shifting our energy paradigm requires us to address energy's relationships to the environment, social justice and the new economy. As such, energy democracy wants to see energy as part of the commons that provides a service rather than a commodity that should be exploited. Energy democracy must seek to create a socially just environment by breaking energy monopolies and the concentration of wealth that have often priced people of color and of low economic means out of better housing markets, education systems and communities. This led to "sacrifice zones" where people of color bear disproportionate negative effects of energy development and use. Natural disasters and changing climate have exasperated these issues, amplifying the need to spread resources, better prepare communities in need, and empower disadvantaged communities.
This chapter provides several examples of organizations and communities working to create socially and environmentally just energy systems. Nevertheless, to get to a socially and environmentally just system, our energy system needs to be transformed from one that is rooted

in capital gain, like our current fossil fuel economy. Government subsidies is a driving force behind the fossil fuel economy, and perpetuates and widens the social and environmental justice gaps.

Our existing energy system does not need to be tweaked; it needs to be transformed to one that is rooted in democracy. Energy cooperatives is one way to do this. The authors provide various examples of energy cooperatives in the U.S. The mainstream model for promoting renewable energy is one that supports large-scale, centralized systems. However, this model rarely creates democracy. The alternative decentralized model is one that seeks to balance social, economic and environment needs and interests and is resilient in nature.

Ch. 12

The authors make a clear argument why water is the most important resource we have that even with all of technological advances, access to clean water in the U.S. may not always be a given future and is some communities is not a given now. Climate changes most devastating impacts most often comes via water. Extreme weather events, loss of snow pack, decrease in water quality threaten our water systems and create hazards of rivers, lakes and oceans. Our water patterns have become unpredictable, making it difficult to plan for and adapt to water supply fluctuations, contamination, wastewater and storm water needs. We have a greater need than ever to sustain our watersheds and retain our marshes and floodplains. Our manmade infrastructure is old and out dated, making natural infrastructure all the more important. We need to consider our built, natural and human systems as interlinking communities.

The chapter outlines how water converges with our energy, economic, equity and environmental challenges and that to adapt we must use a systems thinking approach. While our water systems are adaptable, they do have thresholds. "Higher highs and lower lows are the new normal" (p. 215). These new normal put all three types of infrastructure at risk.

The author uses the term "nature's rights" (p. 214). What does she mean by this? Give an example to support your answer.

Water systems can adapt and bounce back. Factors that can promote this include building infrastructure that mimics nature, developing defense mechanisms against extreme events, using climate models to guide local decisions and management. In addition, instead of trying to put the pieces back into an old system after a crisis, a resilient water system should transform. Integrated water management is one way to do this and this approach is described on p. 217 – 218, and changes made in L.A. are used as an example.

Resilience also requires enough social and natural capital to allow for a bounce back. Natural capital includes surface and groundwater. There needs to be an adequate and quality supply of each. Things like low-impact development, reducing incidences of contamination, developing water storage systems, creating riparian areas, promoting private conservation easements, and

investing in river restoration are a few things that can be done to promote ground and surface water conservation. Creating civic engagement opportunities for taking ownership of such conservation practices is critical. However, having water as a commodity that can be bought and sold does not encourage conservation or social engagement. Collective water management systems are rooted in equity and help ensure water is a common resource.

Ch. 13
Food systems include processes, resources and people needed to provide food to people and animals. Food systems are found at local and regional levels and are linked across scales – such as a cup a coffee enjoyed at a local coffee shop with coffee beans grown half a world away. Food systems are life supporting but can, and currently do, deplete our local and natural systems. Industrialized food systems strip soils, contaminates water, adds to changing climate, and does not build local social capital. Although there are many negative aspects (public health problems, decrease in family farms, increase corporate monopolies, etc.) to today's food systems, the transition to large-scale production helps make food available globally.
Food systems are both impacted by and aid in a changing climate. Rising temperatures affect agriculture and change the types of crops that can be grown in certain regions and having negative effects on livestock. Increases in natural hazards such as flooding and fires increase crop loss. There is also an increased risk of infectious disease, allergies, and illnesses that effect food systems. However, raising livestock and the addition of inputs such as fertilizers and pesticides contaminates water, increases methane and collectively results in non-point source pollution.

To be resilient, food systems need to take an alternative approach. This approach should promote diversity, recycle nutrients, and protect water quality; promotes cooperation; promotes good public health practice; and builds social capital. Such systems resonate with the public and can be seen in new marketing strategies and product development.
Success in alternative food systems and systems-level planning can be seen in Vermont's Farm to Plate initiative. The author describes the initiative and its strategic plan beginning on p. 231. On p. 233, the author recognizes that it is tempting to begin the planning by asking the question "Can we feed ourselves with local food?" but the answer is most certainly no. The purpose of creating an alternative food systems plan is about more than becoming food independent. The focus should instead by on creating sustained resilience that supports the processes, resources and people and needs to happen at multiple scales from community gardens to regional and statewide plans and needs to consider social, political, economic and environmental factors.
On p. 234, Fig. 13-1 shows a graphic of Vermont's food system and further discusses the framework for applying the model on pp. 235-237. How can Vermont's soil to soil model and their Farm to Plate initiative by adapted to and applied in Alaska?
What does the author mean when he says your food network is your Swiss Army knife? (p. 237)

Similar to Alaska, farmland has historically been reduced in Vermont. Can the strategies employed in Vermont to conserve farmland work in Alaska? Why or why not? (p. 237-238). Vermont and Alaska have many other similarities such as having relatively low populations, short-growing seasons and topographic challenges. However, the politics in Vermont and relatively close proximity to other food systems may make it easier for Vermont to initiate such a plan successfully. Vermont also have niche markets and food processing support and services. Other than salmon, most food that Alaska produces stays in the state. Are there opportunities for Alaska to learn more from Vermont's plan to help our state be more resilient?

Ch. 14

To become resilient, resilience must be taught and communities must learn. Resilient learning requires us to change the way we deal with problems and change our habits and relationships. Resilient teaching requires us to systematically change the way we think about the delivery of both formal and informal education.

There are many examples of formal K-12 education embracing more hands-on resilience engagement through place and project-based education; however, few schools systematically integrate such learning throughout their curriculum. Financial, time and curriculum/test constraints limit what teachers can do.

Sustainability education efforts occur throughout the higher education system and sustainability has proven to be important to many students. Green Mountain College is one example of higher education attempting to integrate sustainability throughout the institution.

Nonformal and informal education provides us with vast opportunity to engage community members in resilient thinking.

Ch. 15

In this chapter, the author poses the question, what is sustainable consumption? The author argues that to be resilient, we need to follow the tenets of the Sustainable Consumption Toolkit (p. 262) and the practices outlines on p. 264. Following the plentitude model (p. 264-265) would allow us to need less, work less, and have more time to access goods and services outside the consumer society. More and more US cities are analyzing their consumption and recognizing how sustainable consumption activities can address interconnected crises.

Examples of sustainable consumption initiatives include developing a sharing economy that allows for the sharing resources across the community and can lead to less overall consumption, repairing what we have and supporting volunteers and professionals in their efforts to reduce overall consumption, creating better integrated mobile plans and systems that reduce single occupancy vehicles and diversifies mobility options, creating more and resilient local economies that include cooperative business models, and creating smaller and more affordable housing plans that are located in vibrant neighborhoods such as in cohousing communities.

A take home message is that to increase sustainable consumption, efforts need to be practical and seen as beneficial.

Do you agree with the author that people in the US consider themselves consumers first and community members second? Why or why not? (p. 274).

Ch. 16

The author opens with the statement "When you hear the word city or community, the first thing image that comes to mind is probably of a street". What do you think of when you hear the word city? What about community?

Streets are public right-of-ways that connect our private and public life. The phenomenon of transportation-land use connection influences the amount of driving people and is in part responsible for the economic, social, environmental and public health of our cities.

Drivable cities are built for vehicles and their design is often suboptimal for other types of transportation. Cities that prioritize vehicles in their design tend be sprawling in nature and have negative consequences on land use, whereas walkable cities tend to be more compact in nature and include networks of sidewalks and public transportation options. Compact cities tend to flourish. In addition to reducing the impact of fossil fuels, being less car dependent results in improved public health. A resilient city is one that can bounce back after a crisis and walkable cities inherently improve those odds. However, making a city resilient is a long-term commitment. Many cities do not have the money, labor, vision or political will to make this kind of transformation. To be resilient, these types of transformation must include the public. Public involvement will not only increase buy-in, but also helps planners and policy makers better understand the needs, values and priorities of their community. The author introduces the concept of tactical resilience and explains why collaborations with citizens, businesses and community leaders is key to long-term success. He offers examples and lessons learned in the communities of Burlington, VT and Norfolk, VA. In short, small collaborations may seem like a waste of time, but building long-term collaborations requires building blocks at the foundation. Small steps help us on the path of long-term resilience.

Ch. 17

The author argues that a resilient built environment is not the same as a resilient community and to understand how the built environment can contribute to resilience, we need to understand what it is and how it works.

The built environment is the sum of all the built structures in a community and it is the physical manifestation of how decisions have played out in a space. These decisions are shaped by political, cultural, economic and environmental historical factors. For example, one outcome of WWII was increased access and availability to vehicles, which led to creation of suburbia – which historically was only available to those that had cars. These decisions great shape a community's identity and in the case of suburbia, those who could not afford vehicles were

essentially unable to access suburbia, essentially cutting out lower income demographics. However, identity is rooted in what we value and our built environment is a reflection of values. Built environments can be viewed at different scales from individual buildings to an entire city. To be resilient, you need to consider whether a community can bounce back from a crisis and retain identify given these multiple scales. The author describes the four categories of crisis (the four E's) and the people, systems thinking, adaptability, transformability, sustainability and courage required to become resilient. The author connects this chapter to the six foundations for building community resilience introduced in chapter 1.

Much of the infrastructure in this country was built in the 19th and 20th centuries, and communities need to adapt their infrastructure to be more resilient in a changing world. Modern-day adaptations requires us to prepare for uncertain times but will be most effective in a crisis if they reflect human values and are place-based.

Ch. 18

In conclusion, the author challenges us not live in ignorance, and instead asks us to accept that the future is unknown and to do our best to plan for a resilient future. He outlines a set of contradictions that we must face in order to create resilience. He argues that navigating the contradictions is necessary to make authentic, long-term change. He suggests that the best place to start is three-fold: from a place rooted in systems thinking, from a place that is collaborative, and from a place of passion. The author then discusses the importance of doing a resilience assessment to guide the process (p. 314). This assessment will show the functions of the social and political systems, opportunities for cross-scale interactions, and opportunities for collaborative action.

Q. Develop a framework for completing an assessment of xxx community? In order to achieve this task, what steps will you take, what information do you need, whom do you need to talk with?

Q. The author says, "We are all far too interconnected for 'lifeboat' strategies to work". What does he mean by this? (p. 315)

An important take home message is that while local action is important, resilience has to happen across communities to be effective in the long-term. Resilient thinking needs to be multiplied and scaled up to create long-term success.