

Moving Beyond Sustainability: A Regenerative Community Development Framework for Co-creating Thriving Living Systems and Its Application

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Abstract

Sustainable development and design have the potential to shift their aim from improving human well-being within environmental limits to catalyzing thriving social-ecological communities (i.e., living systems) across scales. Regenerative development (RD), a methodology that harnesses the potential of living systems, offers a way forward. RD integrates science and practice with essential but often neglected components of sustainability—ecological, social, cultural, spiritual, and geophysical—as well as their temporal and spatial dynamics. It also addresses the root causes of (un)sustainability—thinking and worldviews. This research creates and pilots the first community-scale RD framework (RCD Framework) in a developing intentional community. Findings indicate that the RCD Framework achieves its intended aim of facilitating shifts in thinking and development and design concepts toward holistic and regenerative. Factors that are conducive to or impede RCD are identified, and suggestions are made for advancing RCD science and practice. Implications for larger communities, cities, regions, and sustainable development and design are discussed.

Keywords: regenerative development, regenerative design, sustainable development, sustainable design, sustainable communities, community development

1. Introduction

In western cultures, humans and nature have largely been treated as resources to exploit without limit, and, in many forms, this conceptualization has spread globally (duPlessis, 2012; Kopnina, 2015). In response, discussions in academia and politics around sustainable development became focused in the 1970's and 1980's, with global reports emphasizing its necessity (Meadows et al., 1972; WCED, 1987). Sustainable design (including planning) has a longer history, dating back to the late 1800's, gaining momentum in the 1950's and 1960's with ecological design and social justice approaches, and achieving integration of the two in contemporary iterations (Jacobs, 1969; Farr, 2008; McHarg, 1995; van der Ryn & Cowan, 2007). Sustainable development and design have made significant progress by helping facilitate a global recognition that all humans deserve justice and inclusion, minimum levels of physical health and education, and freedom from poverty while protecting the environmental resources necessary for such lifestyles (e.g., Farr, 2018; Luederitz et al., 2013).

Despite theoretical developments, less progress has been made towards achieving sustainability goals (Kopnina, 2015; van der Leeuw et al., 2012; Wiek et al., 2015; Ziervogel et al., 2016). It is questionable whether commonly accepted sustainability goals (i.e. Sustainable Development Goals) are appropriate for promoting sustainability as a process that occurs throughout time (duPlessis, 2012; Kopnina, 2015; Luederitz et al., 2013). For example, continued economic growth (United Nations Sustainable Development Goal #8) is based on increased consumption of natural and social resources; the result is inherently incompatible with sustainability, perpetuating environmental destruction and social inequity (Kopnina, 2015). Additionally, some scholars and practitioners question whether anthropocentrically-centered goals are suitable for increasing the health of whole social-ecological systems

(duPlessis, 2012; Kopnina, 2015; Reed, 2007).

While sustainable development has been useful thus far for conceptualizing some of the elements needed for sustainability, integrating a holistic worldview could help it advance. Sustainable development must acknowledge and incorporate the dynamic nature of whole living systems and focus on creating health and well-being in those systems (duPlessis, 2012). A more fully integrative and holistic sustainable development and design process would draw out the inherent wisdom of inhabitants, co-create place-based designs and processes, and build evolutionary capacities of whole living systems. It would also address underlying root causes of (un)sustainability and the deepest leverage points of systems—paradigms and worldviews—rather than focusing on symptoms (Abson et al., 2017; Fischer et al., 2012; Meadows, 1999). Finally, it would recognize social-ecological communities as the foundational building blocks of sustainable landscapes, cities, and regions (Luederitz et al., 2013; Wallner et al., 1996).

Recent understandings in ecology, quantum physics, systems theory, and similar fields, as well as indigenous knowledge and practices support a holistic worldview and corresponding actions (Berkes & Davidson-Hunt, 2008; duPlessis, 2012; Kay, 2008). Adopting a holistic worldview entails integrating science, practice, and ways of knowing and perceiving; ecological, social, cultural, spiritual, and geophysical components of living systems (i.e., social-ecological systems) as well as their spatial and temporal dynamics (Gibbons et al., 2018). When this integration occurs, the aim of sustainable development and design shift from efficiency, mitigating damage to the environment, and improving human well-being within limits to growing the capacities of whole living systems to increase continually in health, vitality, and abundance—in other words, thriving. In this context, I define health as the condition in which complexity, diversity, capacity to support all life, and the potential to change to provide future options increases in the system (Boyle & Kay, 2008; Holling, 2001; Mang & Reed, 2012; Prescott-Allen, 2001; Rapport, 1989). From a holistic worldview, humans would recognize the diverse and dynamic nature of nested living systems and live in congruence with the principles of healthy living systems, becoming conscious catalysts for co-creating systems in which vitality and abundance emerge and all life thrives (duPlessis, 2012; duPlessis and Brandon, 2015; Mang & Reed, 2012; Russell, 2013). Perspectives from a holistic worldview have been integrated to some extent in design through approaches such as ecological design, biophilia, biomimicry, and Permaculture (Hes & duPlessis, 2015). Sustainable development also has the potential to integrate a holistic worldview and move social-ecological systems towards thriving. The emerging field of regenerative development may offer a way forward through a greater integration of science, practice, and ways of knowing to move toward not just sustainable but thriving living systems.

In this paper, I briefly introduce regenerative development and design as embracing and enhancing sustainable development, elevating its goals and processes. I propose that the aim of sustainable development should be thriving. I then discuss the role of communities in larger-scale shifts toward thriving living systems. I detail the design and piloting, in a series of community workshops, of the first community-scale regenerative development framework for co-creating intentional communities. I discuss to what extent the outcomes of the workshops are regenerative and what factors potentially promote or impede the process. I end with the implications for larger communities, cities, regions, and sustainable development and design science and practice as well as suggestions moving forward.

1.1 Regenerative Development and Design

For more than 20 years, the field of regenerative development (RD) has been integrating science and practice, ecological, social, cultural, spiritual, and geophysical components of living systems as well as their temporal and spatial dynamics (duPlessis & Brandon, 2015; Hes & duPlessis, 2012; Mang et al., 2016). RD strives to identify and co-create the necessary conditions and actions for the sustained, positive evolution of a system. The aim of RD is to manifest potential across scales in whole living systems by developing capacities in both the social and ecological components that increase continually levels of health, vitality; in other words, to move towards thriving (Mang & Reed, 2012; Russell, 2013). Regenerative design, when working within regenerative development's guiding framework, applies a system of technologies and strategies based on an understanding of the inner workings of living systems that generate healthier life-promoting patterns between social and biophysical components (Benne & Mang, 2015; Hes & duPlessis, 2015; Cole, 2012; Reed, 2007).

RD integrates both the inner and outer dimensions of existence that are necessary for sustainability and that mainstream sustainability has had a difficult time addressing (Berejnoi et al., 2019). This includes shifting worldviews of inhabitants of a place from mechanistic to holistic, paradigms from reductionistic to regenerative, relationships from transactional to reciprocal and transformational, and outcomes from degenerative to regenerative.

To achieve these shifts, RD rests upon a foundation of profound systemic changes that include the power to transcend paradigms, the mindset out of which the system arises, the aims of the system, and the capacity of the system to self-organize (Abson et al., 2016; Hes & duPlessis, 2015; Mang & Reed, 2012; Meadows, 1999). RD deeply engages all stakeholders with place (i.e., the social-ecological community within which they most intimately interact) and works to create a “new mind” with which to see, understand, and interact with place and the world (Mang & Reed, 2012). It seeks to create not just residents of a place, but inhabitants, who are deeply connected to, care for, and take responsibility for the place (i.e., living system) of which they are an integral part (Cole, 2012; duPlessis & Brandon, 2015; Mang & Reed, 2012; Reed, 2007). Continuous learning and participation of stakeholders and inhabitants through action, reflection, and dialogue are key to manifesting the long-term aspirations of any RD project and growing the capacities (Reed, 2007).

1.2 Alternative Community Development Paradigms

Social-ecological communities are the building blocks of cities, landscapes, and regions (Buckert et al., 1999). Research and action at the community level is key to sustainability and should be holistic in nature (Fischer et al., 2012; Forman, 2008; Opdam et al., 2013; Wu, 2013). I define “community” as the biotic and abiotic components of a directly interacting network of life (Opdam et al., 2013; Wallner et al., 1996). Exchanges at the community level are strong and become much weaker outside of it (Wallner et al., 1996). I use “community” as a holistic term that includes the complex web of life and its physical-metaphysical-social relationships, in contrast to “neighborhood,” which typically indicates a geographically-bounded area in a human-dominated system. Integrating regenerative development with intentional communities could provide a promising pathway to elevate sustainable development.

As the human population continues to grow, new development and redevelopment of human settlements and communities is inevitable. Resultant opportunities exist to make any community regenerative by shifting worldviews and resulting physical and social structures. The relationship between physical structures, sociocultural structures, and worldviews is multi-directional, with one influencing the others in an ontological feedback loop (Corral-Verdugo & Frias-Armenta, 2016; Fry, 2013; Meadows, 1999; Reed, 2007). When a regenerative development process is implemented intentionally and allowed to unfold, new or redesigned communities can be catalysts for change not just within their boundaries but at larger scales. Aims and goals move from improving human well-being within environmental limits to co-creating thriving communities across scales.

The burgeoning number of intentional communities globally is evidence of humans’ desires to live as part of a group with shared values (Fellowship for Intentional Community, 2019). Tens of thousands of intentional communities exist worldwide, taking the form of ecovillages, co-housing, student co-ops, and more (Jackson, 2004; van Schyndel Kasper, 2008). An intentional community is one in which people have chosen to live in close proximity—usually in the same geographic location—to carry out a shared lifestyle or common purpose that reflects shared core values (Christian, 2003). Ecovillages, in particular, focus on co-creating sustainable ways of living and being as well as influencing other communities to do the same. Ecovillages have been in existence since at least the 1960’s, although their basic characteristics and aspirations reflect much older ways of humans living closely with each other and nature. These characteristics include relative self-sufficiency in energy, food, water, and sometimes economics; local/community ownership; participatory processes in social, cultural, ecological, and economic dimensions; self-renewal; coupled human-nature community consciousness; and aims supporting healthy human development within an overarching context of a healthy environment (Christian, 2003).

The inhabitants of a community as well as the stakeholders who co-create it ultimately determine whether it is (un)sustainable or (not)thriving. Places are not static but are constantly changing. Developing capacities in the human and more-than-human components of communities to change in ways that continually manifest higher levels of health and well-being (i.e., potential) and thus regenerate, rather than degenerate, is necessary for thriving. These capacities include adaptation, self-organization, and evolution as well as making decisions about infrastructure, land use, governance, food systems, cultural practices, and lifestyles that support whole-system health. The thinking underlying these decisions must shift for the rest of the systems’ properties to shift towards thriving (Abson et al., 2017; duPlessis, 2012; Meadows, 1999; van Schyndel Kasper, 2008).

1.3 Aim and Scope of Research

Intentionally developing and working within holistic frameworks to guide our thinking and actions is necessary so that we move beyond incomplete mechanistic, reductionistic ways of thinking and being (duPlessis & Brandon, 2015; Mang et al., 2016). Despite RD having been implemented for more than 20 years, frameworks and tools for

guiding thinking and practice in regenerative development are nascent, do not incorporate recent supporting scientific developments, and have not been assessed using either mechanistic or holistic scientific methods. Additionally, existing RD tools (e.g., LENSES, Regenes framework) are general and not created specifically for communities. Although there is practitioner evidence, there are no research studies explicitly and empirically investigating whether and how the regenerative development process works to shift worldviews to holistic ones. Additionally, there are very few studies assessing the development and design outcomes of RD processes (Hes et al., 2018; Plaut et al., 2016).

My research attempts to fill these gaps, creating and piloting the first community-scale regenerative development framework—the Regenerative Community Development (RCD) Framework. The purpose of the RCD Framework is to synthesize scientific and practitioner knowledge into an instrument to guide thinking and actions in communities toward thriving. The RCD Framework is informed by an iterative process integrating scientific theory with applied practice. It generates scientific hypotheses, tests hypotheses through practice, integrates new knowledge, then adapts the framework (Figure 1). This paper reports experiences, findings, and outcomes for one iteration of this cycle. Further, I make recommendations for future applications of the RCD Framework.

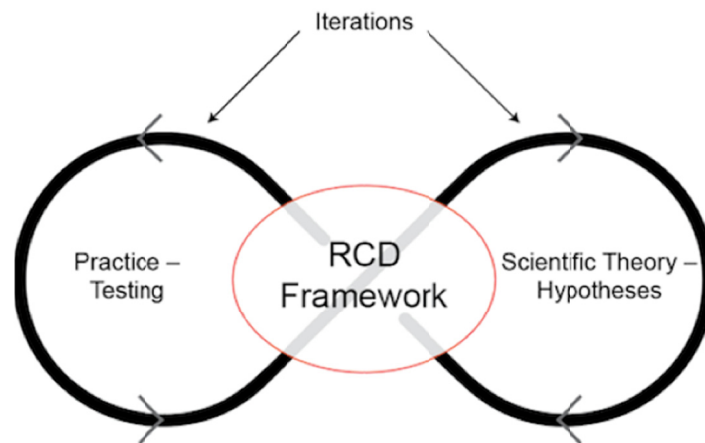


Figure 1. RCD framework development process

The RCD Framework is informed by an iterative process of creating scientific hypotheses, testing hypotheses through practice, and adapting the framework by integrating new knowledge.

2. Methods

There are 2 phases to my methods: (1) RCD Framework development and (2) community workshops piloting the RCD framework. I address the following questions:

- 1) What might be the necessary components of a RCD framework?
- 2) To what extent does the RCD Framework shift worldviews toward holistic ones?
- 3) To what extent does the RCD Framework produce regenerative development and design concepts?
- 4) What factors might be conducive or impediments to the process?

2.1 RCD Framework Development

To create the RCD Framework, I used an in-depth review of literature and RD practice to determine what major categories, components, and elements should be included as well as how the process could be structured (Figure 2). My objective was to identify sustainable community development and design processes, methods, and criteria; key characteristics and components of regenerative living systems; and regenerative development and design principles, processes, methods, criteria, strategies, and indicators. To do so, I reviewed six scientific fields most relevant to understanding how healthy living systems function and how humans can intentionally interact with them in health-promoting ways: ecology, complex adaptive systems science, sustainability, design, planning, and regenerative

development and design. Searches were conducted using Web of Science and included the terms “social-ecological systems,” “sustainable communities,” “sustainable neighborhoods,” “complex adaptive systems,” “sustainable community design,” “sustainable community planning,” “sustainable neighborhood design,” “sustainable development,” “sustainable community development,” “regenerative development,” “regenerative design,” “holistic worldview,” and “ecological worldview.”

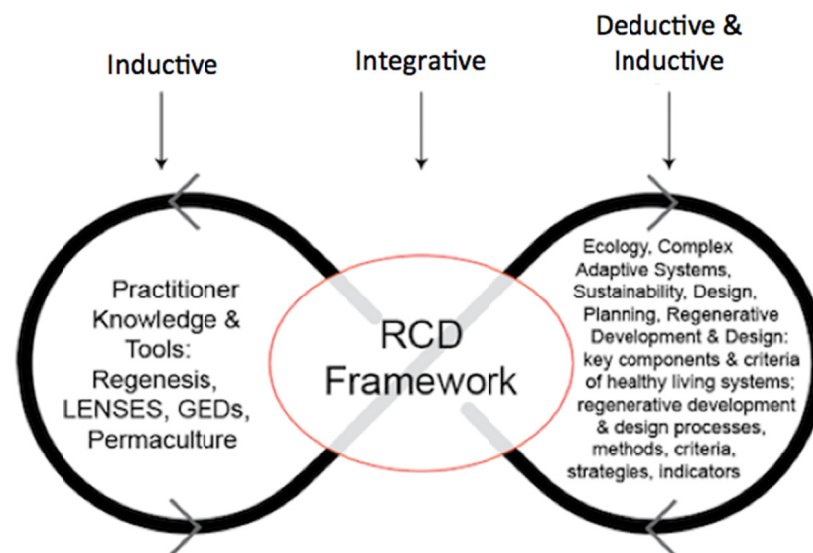


Figure 2. RCD framework development methodology

An integrative process was used to integrate deductive and inductive knowledge from scientific literature with inductive knowledge and tools from practice. Literature analysis included the fields of ecology, complex adaptive systems, sustainability, design, planning, and regenerative development and design. Practitioner knowledge and tools from regenerative development and design trainings including those from Regenes Group, LENSES (Living Environments in Natural, Social, and Economic Systems), GEDS (Gaia Education Design for Sustainability), and Permaculture were analyzed. Analyses revealed key characteristics and components of regenerative living systems as well as regenerative development and design principles, processes, methods, criteria, strategies, and indicators, included in the RCD Framework.

I also participated in two regenerative development trainings (CLEAR, 2017; Regenes, 2016), the Gaia Education Design for Sustainability (GEDS) training (Gaia Education, 2017), and a Permaculture Design Course training (OAEC, 2018) in order to gain a greater understanding of regenerative development practice and theory, beyond what is in the literature. Participation in these trainings was necessary since regenerative development and design have emerged largely in the practitioner world in more inductive, experiential ways, generating practitioner knowledge and tools. The two regenerative development trainings were the only ones offered at the time that focused on holistic development and were conducted by pioneers and experts in the field. The GEDS training focuses on ecovillage development and design, distilling decades of knowledge from hundreds of ecovillage living + learning experiments around the world. It claims to have a regenerative orientation. Permaculture is one of the oldest and most-widely utilized regenerative design technologies in existence (Holmgren, 2002; Mollison, 1988).

I triangulated data between sources to identify major similarities as well as differences and gaps that exist between science and practice. Similarities provided data on what criteria are necessary for regenerative processes and thriving living systems. Differences provided data on how RCD can move beyond sustainable community development and design. Gaps provided data on how RCD can be strengthened by science and sustainability practice.

2.2 Community Workshops

I piloted the RCD Framework in a series of workshops with members of Hart's Mill, a developing ecovillage in North Carolina, USA. I chose Hart's Mill due to its stage in the development process (design and planning), members' willingness to engage with RCD and potentially adopt it moving forward, and the feasibility of collecting the necessary data. Hart's Mill will occupy 112 acres in an urban growth boundary in rural Orange County, North Carolina. It is at the headwaters of the Upper Neuse River Basin, part of the Neuse River Basin, an ecologically, economically, and culturally important watershed in the region (American Rivers, 2019) (Figure 3). The land is currently a mosaic of woodlands, pasture, fields, wetlands, streams, and a pond. In the recent past, it was used for tobacco farming and timber production.

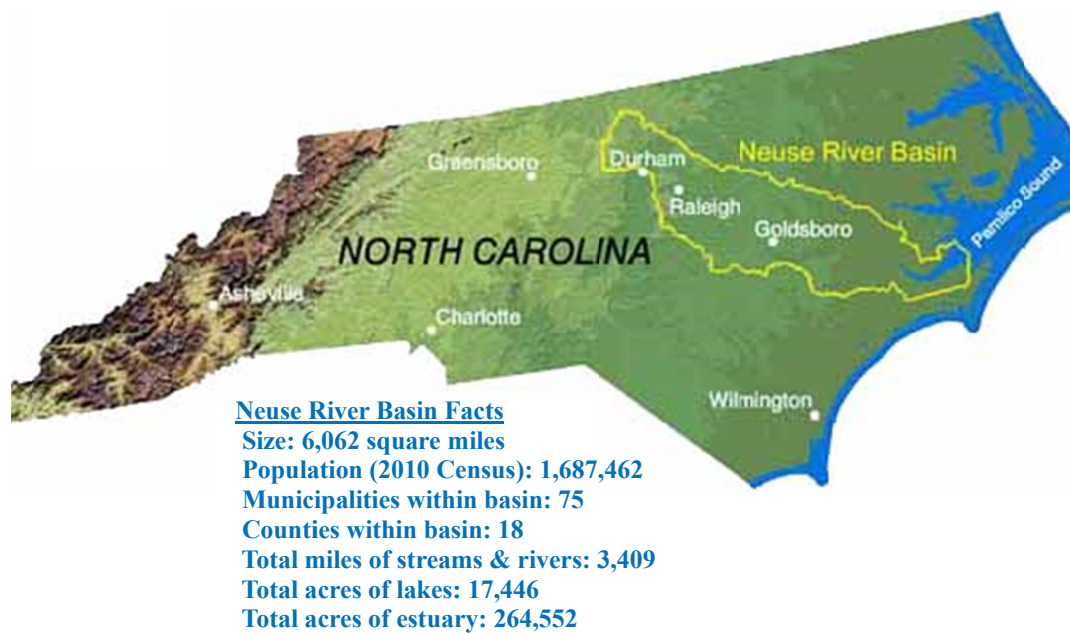


Figure 3. Hart's Mill's location within the Neuse River Basin, North Carolina, USA, and relevant information about the Neuse River Basin. Map from USEPA (USEPA, 2019)

Before the workshops, I familiarized myself with Hart's Mill and its context by spending time on the land, using maps and publicly available data and information, and analyzing community documents including organizing, guiding, development, design, governance, and meeting documents. I used the RCD Tools presented herein to begin identifying major flows and changes in time and space that give or have given life to these communities (e.g., water, energy, organisms, soil, infrastructure, food, finances, information). I also increased my understanding of the dynamic nature of Hart's Mill as a community and its current relationship to RCD principles and processes, providing baseline data against which to compare development and design outcomes of the RCD Process.

Prior to the first workshop, a focus group was held to assess participants' current thinking about community development, design, and living (Box 1). I chose these subjects in order to address my research questions and because regenerative community development hinges on development, design, and lifestyle decisions and actions and, thus, the thinking underlying them. Focus group questions were adapted and developed from my in-depth literature review (e.g., Cole, 2012; Corral-Verdugo & Frías-Armenta, 2016; duPlessis, 2012; Dunlap et al., 2000; Dunlap & Jones, 2002; Hes and duPlessis 2015) and participation in regenerative development and design trainings. Focus groups provided baseline data on participant thinking and worldviews. Focus groups were administered again at the end of the workshops and included questions about how well participants felt the RCD process and tools achieved their aims, what they felt worked well and did not work well, and suggestions for improvement (Box 1). A survey administered after Workshops 2 and 4 also collected similar data about participants' experience of the RCD process and tools (Box 2). Surveys were used to support data collected through qualitative methods rather than as a

primary data source. Surveys included 5-point Likert scale and free answer responses, chosen to give participants' a wide range of responses and provide meaningful data.

During the workshops, participant observation data were collected on participants' comments and actions that indicated ways of thinking about community development, design, and living as well as about their experience with the RCD process and tools. Development and design concept and strategy data were also collected and evaluated using the RCD Evaluation Tool (see "RCD Framework" in Results.). Each concept was checked against criteria in the tool to determine in what ways it was regenerative or could be more regenerative. Concept data were used in conjunction with participant observation, survey, and focus group data to evaluate to what extent the RCD Process and Tools achieved their aims and why. Qualitative data were evaluated using the RCD Evaluation Tool in addition to deductive and inductive codes. Deductive codes were developed based on my in-depth literature review and RD trainings as well as my research questions and indicated different worldviews ranging from mechanistic to holistic and regenerative. Inductive codes included factors that were conducive to or impeding RCD and suggestions for improvement. The combination of data collection techniques provides robustness through triangulation and complimentary sources of quantitative and qualitative data.

A series of four four-hour long workshops were held with 5-8 self-selected Hart's Mill members. This was the maximum amount of time participants could devote to workshops in the initial exploratory stages of the RCD process. All workshops were held at the home of Hart's Mill members, adjacent to the property where the community will be constructed. Workshop activities utilized the RCD Framework Tools and included opening and closing activities. All activities were designed to build the capacities of participants to expand their worldviews toward holistic ones; understand regenerative development; practically work with regenerative development; and be present, engaged, and connected to themselves, each other, the community, and the land. The outcomes of each workshop led into the activities of the next workshop (Figure 4, Box 3).

Box 1. Pre- and Post-Workshop Focus Group Question. The same questions were given post-workshop as pre-workshop, with additional post-workshop questions listed below.

Pre-Workshop Questions:

1. What do you believe is the role of professionals in the community development and design process and its outcomes?
2. What should community development plans and designs be considering, working with, or addressing?
3. Let's talk about how different communities are related to one another.
Do you think they affect one another? How?
4. How much do you think can be known and predicted in community development and design projects?
5. What is the relationship between humans and nature, especially in the context of communities?
6. What is the relationship and responsibility of humans to each other, especially in the context of communities?
7. What do you think about the level/scale at which humans can meet their needs?
8. Let's talk about how you define "community."
 - a. Who composes a community?
 - b. How is a community created?
 - c. How does it continue into the future?
 - d. Is there responsibility that comes with living in a community?

Additional Post-Workshop Questions:

9. Let's talk specifically about regenerative development now.
 - a. How well do you feel that this process as a whole helped you understand and practice regenerative development and design?
 - b. What worked well and what didn't?
 - c. How well did concepts and exercises build on previous ones to produce an overarching understanding of regenerative development and design?
 - d. What concepts and practices are clear for you?
 - e. What concepts and practices are unclear for you?
 - f. What were key concepts, exercises, and practices for you?
 - g. What could be changed? How?
 - h. Would you like to continue using regenerative development in your community? Why or why not?

Box 2. Post-Workshops 2 and 4 Survey Questions

Answer type—Likert scale or free answer—is indicated after each question. Likert Scale: 1 – Not at all; 2 – A little; 3 – Fairly; 4 – Significantly; 5 – Very Much

Post-Workshop 2 Questions:

1a. The exercise in which we talked about what we love about our place (i.e., community and land) helped me understand better what I and others appreciate and value about our community. (Likert)

b. Explain more, if desired. (free answer)

2a. The portion of the workshop in which we were presented with information about regenerative development and how the process unfolds helped me understand better what it is, how it is different from other approaches, and how it can be used in our community. (Likert)

b. Explain more, if desired. (free answer)

3. How would you define and describe regenerative development? (free answer)

4a. The exercise in which we worked with integral perceiving (using maps; discussing the past, present, and future of the area; looking at flows through the area) helped me understand better how our place (i.e., land) and the surrounding area did and/or could function to be healthy and thriving. (Likert)

b. Explain more, if desired. (free answer)

Post-Workshop 4 Questions:

1a. Revisiting the main points and outcomes from the previous weekend of workshops was helpful for me. (Likert)

b. Explain more, if desired. (free answer)

2a. The visioning exercises helped me imagine Hart's Mill in a future regenerative state. (Likert)

b. Explain more, if desired. (free answer)

3a. Exploring water as a life-giving flow through our community as a way to begin exploring connections was helpful.

b. Explain more, if desired. (free answer)

4a. Exploring water as a life-giving flow helped me understand connections across scales. (Likert)

b. Explain more, if desired. (free answer)

5a. Exploring water as a life-giving flow helped me understand better how the potential of Hart's Mill could be manifested.

b. Explain more, if desired. (free answer)

6a. Exploring water as a life-giving flow helped me understand better how human-nature interactions can be mutually

beneficial. (Likert)

b. Explain more, if desired. (free answer)

7a. Exploring water as a life-giving flow helped me understand better the social (i.e., human) dimension of regenerative development. (Likert)

b. Explain more, if desired. (free answer)

8a. Exploring water as a life-giving flow helped me understand better the ecological dimension of regenerative development. (Likert)

b. Explain more, if desired. (free answer)

9a. Exploring water as a life-giving flow helped me understand better regenerative development as a social and ecological process that continues through time. (Likert)

b. Explain more, if desired. (free answer)

10a. Exploring water as a life-giving flow helped me understand better the social and ecological products of regenerative development. (Likert)

b. Explain more, if desired. (free answer)

11a. Working in a group allowed for emergent outcomes (greater and different than the sum of the parts) of the workshop that could not have occurred otherwise. (Likert)

b. Explain more, if desired. (free answer)

12a. The overall regenerative community development process (weekends 1 and 2) has helped me understand better how my community (the social and ecological components) functions as a whole living system. (Likert)

b. Explain more, if desired. (free answer)

13a. The overall regenerative community development process (weekends 1 and 2) has helped me understand better how my community (the social and ecological components) functions as part of larger living systems/communities. (Likert)

b. Explain more, if desired. (Free answer)

Box 2. Post-Workshops 2 and 4 Survey Questions, Continued

- 14a. The overall regenerative community development process (weekends 1 and 2) has helped me think in new ways about Hart's Mill and what we, as a community, could be like. (Likert)
 b. Explain more, if desired. (free answer)
- 15a. The overall regenerative community development process (weekends 1 and 2) has helped me think in new ways about my role in Hart's Mill. (Likert)
 b. Explain more, if desired. (free answer)
16. Please use the space below to make any more comments you would like to about the workshops. Please also share ideas for if and how you envision continuing such work in Hart's Mill may be beneficial to Hart's Mill as a community and to you as an individual. (free answer)

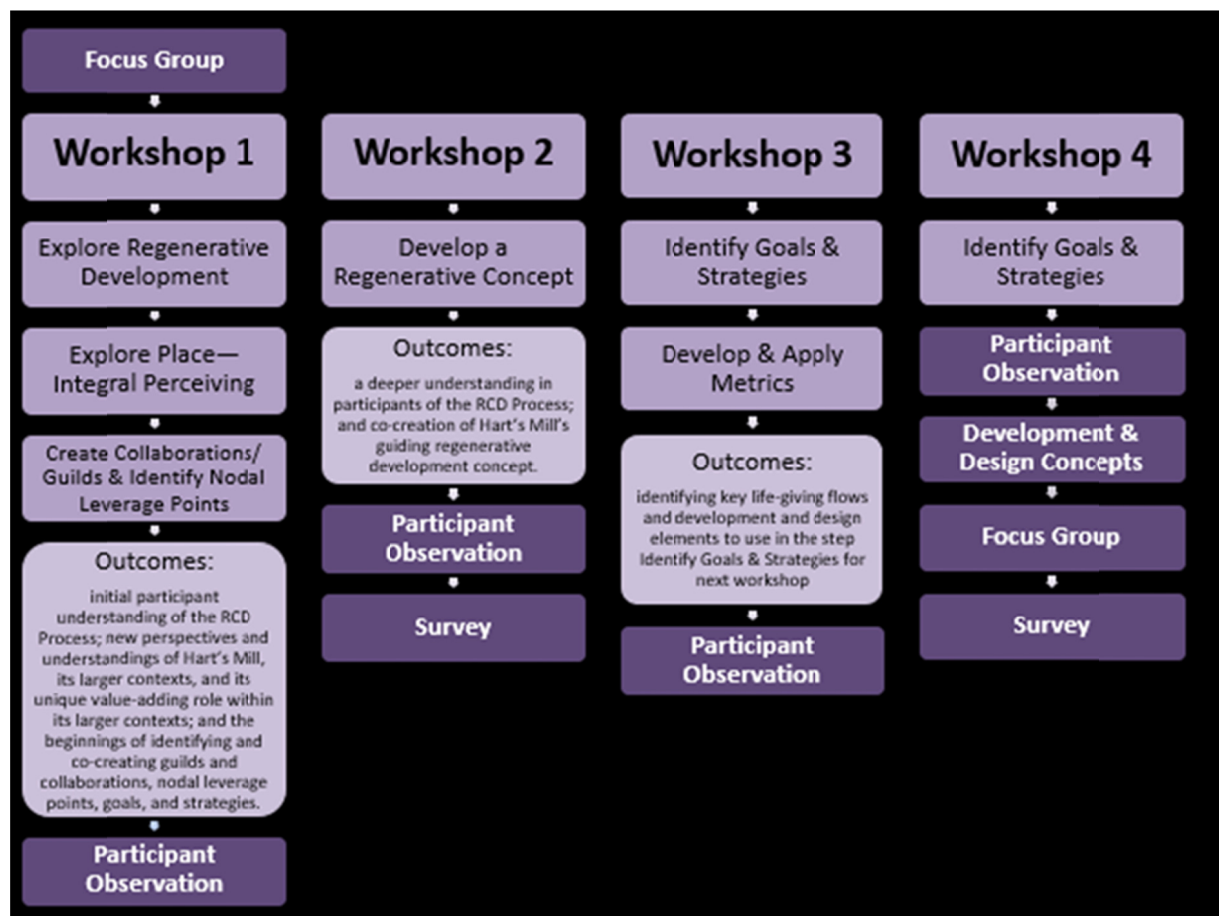


Figure 4. Regenerative community development workshop flow

Medium purple boxes denote workshops and sub-processes in the Regenerative Community Development Process. Light purple boxes denote outcomes of workshops. Dark purple boxes denote data collected.

Box 3. Regenerative Community Development Workshop Activities

Workshop 1, November 17, 2018.

- *Opening activity*: Participants shared with the entire group their full name and its significance or meaning to them, if any. The purpose was to help participants, who have known, worked, and, in some cases, lived intimately with each other for years, to see each other from a different, more complete perspective.
- *Focus group*: A one-hour pre-workshop focus group was conducted, with questions similar to those from the survey but framed to elicit open-ended responses.
- *Transition*: To transition to the RCD Process, participants shared what they love about their community. The purpose of this activity was to help participants shift into thinking about the potential of their community, to foster greater connection to each other and the land, and collect data that would also scaffold into future parts of the RCD Process.
- *Explore Regenerative Development*: We explored regenerative development and introduced the tools we would be using to familiarize participants with the concept and approach.
- *Explore Place—Integral Perceiving*: We used the Integral Perceiving Tool to explore Hart's Mill and the larger communities of which it is a part. The objective was to help participants understand the potential of their community in terms of past, present, and potential future life-giving flows that have been or could be present. Participants worked with maps of their site and larger communities, marking past, existing, and potential flows and relationships.
- *Create Collaborations/Guilds and Identify Nodal Leverage Points*: Participants used their understanding of place and its potential to identify possible collaborators within the larger community who could play a role in manifesting its potential. They also identified nodal intervention points (i.e., leverage points)—places where many flows converge and small efforts could have large system-wide effects—in their own community and the larger communities of which they are a part. These steps naturally integrated in the group process.
- *Closing activity*: Participants shared what had been helpful in the process thus far.
- *Outcomes*: Collecting baseline focus group data; participant observation data; initial participant understanding of the RCD Process, new perspectives and understandings of Hart's Mill, its larger contexts, and its unique value-adding role within its larger contexts; and the beginnings of identifying and co-creating guilds and collaborations, nodal leverage points, goals, and strategies.

Workshop 2, November 18, 2017.

- *Opening activity*: Participants gazed into a partner's eyes for 2 minutes and were encouraged to see that person in a new way. The purpose was to help participants open to a new way of seeing things that are familiar to them.
- *Review*: We reviewed the previous day's activities and outcomes.
- *Develop a Regenerative Concept*: We collected key words and concepts from all of the previous day's activities on large paper, hung on a wall so everyone could see. As a group, we crafted the key words and concepts into the Regenerative Development Concept—data translated into a narrative form that can guide the community in its process.
- *Closing activity*: Participants shared what they liked most and found most helpful during this workshop.
- *Outcomes*: Collecting participant observation data and design concept data; a deeper understanding in participants of the RCD Process; and co-creation of Hart's Mill's guiding regenerative development concept.

Workshop 3, January 19, 2019.

- *Opening activities*: Participants shared thoughts since the last workshop and what they were excited about in order to reconnect to the energy and excitement that existed at the end of the second workshop. We also participated in a group yoga sequence to energize our bodies, minds, and spirits and connect with each other and the land. We revisited previous activities and outcomes in order to revive our intellectual, emotional, and spiritual experiences. We then did a guided visioning exercise, envisioning a day in Hart's Mill 10-15 years from now. The aim was to help participants develop creative energy around the potential of Hart's Mill and move us into the next activities.
- *Develop & Apply Metrics and Identify Goals & Strategies*: We built upon the previous activities and used the RCD Evaluation Tool to facilitate identifying potential metrics, goals, and strategies.

Box 3. Regenerative Community Development Workshop Activities, Continued

Workshop 3, continued.

- *Closing activity*: We discussed what had been helpful and confusing as well as what the focus of the next workshop should be to create the most benefit for participants and the community.
- *Outcomes*: Collecting participant observation data and design concept data and identifying key life-giving flows and development and design elements to use in the sub-process Identify Goals & Strategies for next workshop.

Workshop 4, January 20, 2019.

- *Opening activity*: The facilitator noticed that several participants seemed to be tired and not feeling well. Therefore, for the opening activity, participants shared how they were feeling so we could gain a common understanding of the energy level of individuals and the group as a whole, helping us bring compassion to each other and our co-created group dynamics. The facilitator then conducted the guided visioning exercise again, allowing more time than in the previous workshop for participants to envision and shift into a potential-oriented mindset.
- *Identify Goals & Strategies*: We used water as a nodal leverage point to work with the Integral Perceiving Tool and Identify Goals & Strategies sub-processes in the RCD Process.
- *Closing activity*: Participants shared their overall thoughts and reflections on the process, what they found valuable about the workshops, how they thought the workshops could be improved, and how they would like to incorporate RCD moving forward in their community processes.
- *Outcomes*: Co-creating specific RCD strategies for Hart's Mill; collecting participant observation data; collecting development and design concept data.

3. Results

3.1 RCD Framework

Analyses of literature and participation in regenerative development and design trainings indicated that a RCD framework and tools should fulfill several structural and functional aims. RCD frameworks and tools for sustainable community development should reflect living systems and incorporate living systems principles by being living, relational, integrative, and developmental (Table 1) (e.g., Bastianoni et al., 2019; Benne & Mang, 2015; Boyle & Kay, 2008; CLEAR, 2017; duPlessis & Brandon, 2015; Mang & Reed, 2012; Reed, 2007; Regenesys, 2016). Integrating these findings, I created a RCD Framework with the following elements: a RCD Process Tool (Figure 5), an Integral Perceiving Tool (Figure 6), and a RCD Evaluation Tool (Table 2). The RCD Process Tool guides the overarching structure of regenerative community development. The Integral Perceiving Tool helps inhabitants and stakeholders understand the life-giving flows and patterns of relationships of their place better. The RCD Evaluation Tool helps inhabitants and stakeholders integratively assess the direction of system development and guide decision-making and actions within the larger developmental process. Together, the tools aid shifts toward holism in inner and outer dimensions of living systems.

Table 1. Regenerative community development framework and tools criteria and descriptions

Regenerative community development tools should mimic living systems and incorporate living systems principles.

Criteria	Description
Living	Flexible and adaptable, integrating new knowledge as it becomes available
Relational	Making clearer patterns of dynamic, life-giving relationships both across and within scales
Integrative	Qualitatively and quantitatively considering ecological and sociocultural dimensions of living systems
Developmental	Growing the capacities of communities to work with the complexity of living systems so they can be conscious regenerative catalysts
Grows will, knowledge, capability	Developing the will, knowledge, and capability to act in alignment with the principles of regenerative living systems by increasing understanding of and care for place, developing holistic systems thinking capacities
Deeply participatory & easy to use	Inhabitants of a place and stakeholders collaborate in a co-creative process from inception throughout the life of a place

Reflecting living systems, the *RCD Process Tool* (Figure 5) is meant to be flexible, fluid, and organic. The graphic representation of the tool reflects these characteristics and its aims. The process is similar to other regenerative development processes but includes a more rigorous and guided examination of social-ecological systems dynamics, facilitated by the *Integral Perceiving Tool* (Figure 6). The Integral Perceiving Tool draws on processes used in sustainable community development (e.g., Cloutier et al., 2014), complex adaptive systems science (e.g., Waltner-Toews & Kay, 2008), landscape architecture (e.g., McHarg, 1995), and regenerative development and design (e.g., CLEAR, 2017; OAEC, 2018; Regenes Group, 2016). It supports the “Explore Place” sub-process of the RCD Process. It facilitates inhabitants’ understanding flows and patterns of relationships that have given or could give life to their place across scales of space and time. For example, Hart’s Mill participants explored the interdependencies of historical and current flows of water, organisms, soil, nutrients, and food through their community, the larger community of Mebane, and the even larger community of Orange and Durham Counties. They sought to understand how these flows have changed through time and space and the unique role Hart’s Mill could play to facilitate regenerative patterns of relationship and flows now and in the future. The Integral Perceiving Tool includes the major components that interact in living systems and should be considered when making decisions. These components can be modified to add new flows if necessary. It enhances other approaches in that it adds the crucial dimensions of space and time, which are critical to understanding complex living systems dynamics (Gunderson & Holling, 2002; Holling, 2004; Kay, 2008; Wu & Loucks, 1995).

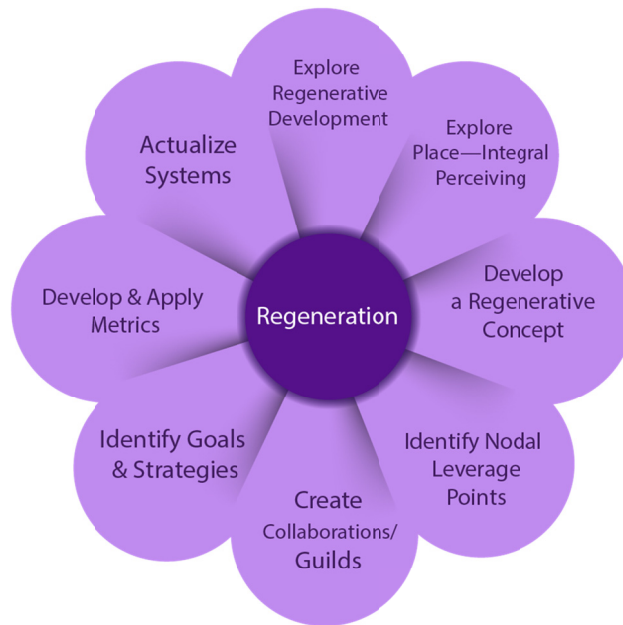


Figure 5. Regenerative community development process tool

This tool guides human communities through a co-creative, iterative process of regeneration across scales. Regeneration is a process that manifests new and increasingly higher expressions of life and levels of health, well-being, prosperity, and happiness. The process begins with “Explore Regenerative Development,” moving to the right through a series of developmental sub-processes to help communities think and act holistically and systemically in both the short- and long-term. The flower graphic reminds us that sub-processes are dynamic, linked, overlapping, and working holistically to develop capacities in whole living systems to thrive. Since sub-processes are linked, they may be revisited as necessary to continually increase learning, awareness of, understanding of, and regenerative relationships to place.

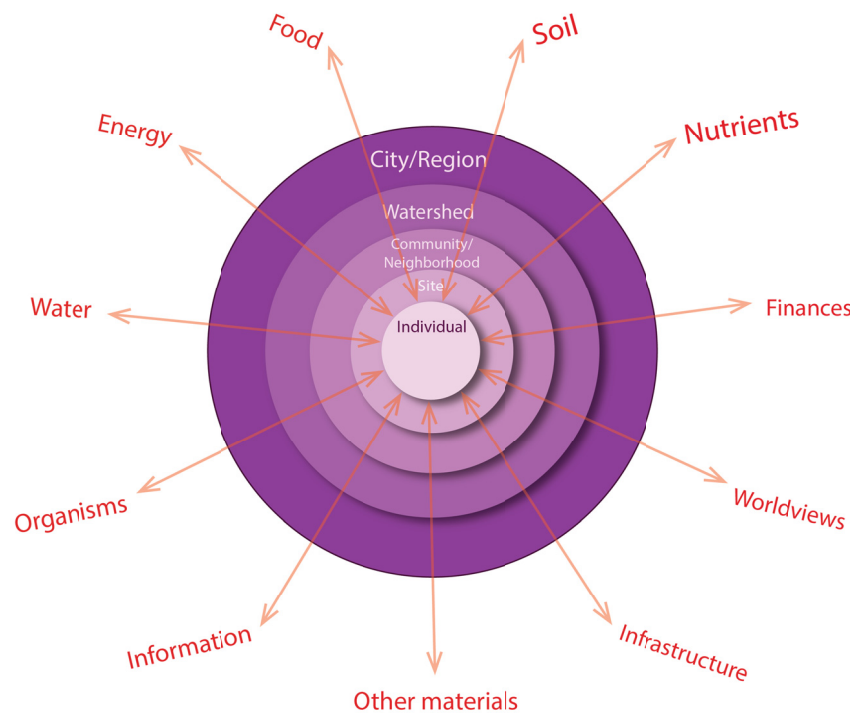


Figure 6. RCD sub-process 2: Exploring place—integral perceiving

This tool guides communities in perceiving/discovering relationships and patterns that give, have given, or need to be present to bring life and vitality to a place. It helps people work holistically with complex living systems, exploring key life-giving elements and their relationships across scales. For example, one might explore how water moves through a landscape, from the scale of region to watershed, community, site, then individual (or vice-versa), contributing to life-giving processes. One would also explore how water interacts with soil across scales and their relationship in enabling life. One might then add food to the exploration, and so on. One can begin this exploration at whatever scale is appropriate, linking across scales—typically at least two scales above and two scales below the focal scale. Through this process, key life-giving patterns emerge that provide the basis for regenerative development concepts and designs specific to a place.

The *RCD Evaluation Tool* (Table 2) helps evaluate and guide RCD efforts in a more detailed way. It includes RD Principles, Core Characteristics of Regenerative Living Systems, RD Indicators, and RD Strategies, integrated through the ecological and sociocultural dimensions of living systems and product and process domains of development and design. It is made specific to place through the Integral Perceiving Tool (Figure 6) of the RCD Process. The graphic for this tool reminds users of the dynamic and integrative nature of living systems and RCD processes. Elements are arranged into similar groups to facilitate ease of use. The RCD Evaluation Tool is hierarchical in that RD Principles should guide all thinking, action, and processes. Core Characteristics reflect our current understanding of how healthy, regenerative living systems function. Indicators help us determine if our efforts, through Strategies, are achieving the Core Characteristics and RCD Principles. Indicators and Strategies included in the tool are inductively derived from literature and practice and should be made specific to place through the RCD process and the Integral Perceiving Tool, in particular. The tool could be used in a top-down way in a community, starting with RD Principles, moving to Core Characteristics, then Indicators, then Strategies. Alternatively, the tool could be used in a more fluid way, for example, by checking existing or proposed Strategies against Indicators, Core Characteristics, and RD Principles.

Table 2. Regenerative community development evaluation tool

This tool guides communities at a variety of scales through a holistic process of evaluating to what extent and in what ways living systems are regenerative. It may also be used to evaluate development and design plans. Regenerative Development Principles and Core Characteristics of Regenerative Living Systems guide the development of Indicators and Strategies for regeneration. This is done simultaneously in Ecological and Social dimensions of living systems as well as Process and Product domains of development and design activities. The Integral Perceiving (IP) sub-process (Figure 6) guides the translation of general Indicators and Strategies into those specific to place and aids in manifesting potential in a place. Users may note system alignment &/or potential in the Dimensions and Domains columns. The flower graphic reminds us that this process is dynamic and integrative; users may find it helpful to move fluidly between components.

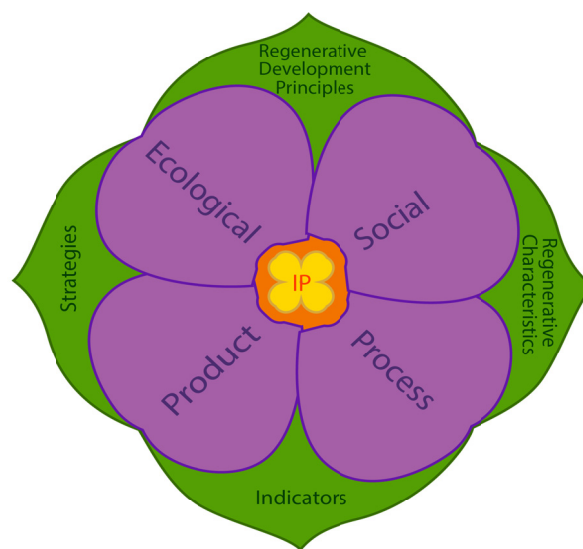


Table 2. (Continued).

Regenerative Development Principles					
These principles guide thinking and action. Check all thinking and actions against RD Principles.					
Meta-Principle	Principle	Dimensions		Domains	
		Ecological	Sociocultural	Process	Product
Wholeness	Works in whole systems (not fragments)				
	Shifts thinking towards holistic worldview				
Change	Manifests potential in a place (potential-focused, not problem-focused)				
	Grows regenerative capacity (in human and more-than-human components of living systems—viability, vitality, evolutionary capacity)				
Relationships	Value-adding: Contributes to healthier functioning/vitality of two next higher scales				
	Mutualisms/Guilds: Creates reciprocal relationships that contribute to healthier, more vital whole				
	Nodal leverage points: Identifies and shifts systemic leverage points to increase health and well-being				

Core Characteristics of Regenerative Living Systems					
Regenerative living systems have these characteristics.					
Category	Characteristic	Dimensions		Domains	
		Ecological	Sociocultural	Ecological	Sociocultural
Traits	Diversity (species, genetic, ecosystem, landscape, functional, response, social)				
	Multifunctionality				
	Redundancy				
	Flexibility				
	Adaptability				
Dynamic Networks	Connectedness				
	Exchanges/flows (materials, information, energy)				
	Nodes				
	Across-scale linkages				
	Tight feedbacks				
	Interdependence				
	Reciprocity				
Structure	Modularity				
	Holarchies (heterarchies, nestedness)				
	Being of value to larger systems				
Uniquely human qualities	Long-term thinking				
	Reflection, learning				
	Holistic/systems thinking and acting				
	Collaboration				
	Responsibility				

Table 2 (Continued).

Regenerative Community Development Indicators					
Core characteristics enable the following observable features that may be used as general indicators, made specific to place.					
Category	Indicator	Dimensions		Domains	
		Ecological	Sociocultural	Ecological	Sociocultural
Dynamics	Self-organization				
	Adaptation				
	Transformation (cascading change upscale to qualitatively different states)				
	Emergence (new levels of order, complexity, organization)				
	Increasing complexity				
	Cycles (energy, nutrients, water, etc.)—local, across scales				
	Resilience				
Structure	Local-scale exchanges (e.g., local economies, rainwater infiltration, etc.)				
	Decentralization				
	Self-sufficiency				
	All levels of work present: operate, maintain, improve, regenerate				
Relationships	Networking/guilding				
	Positive reciprocity				
	Increase in capitals (natural, social, human, financial, built)				
	Adding value up-scale (enabling larger scales to manifest their potential)				
Worldviews	Sacred view of all life				
	Humans as producers, not consumers				
	Compassion				
	Empathy				
	Responsibility				
	Positive reciprocity				
	Meaningful existence in relationship to place				

Affects	Increasing understanding of place				
	Willingness to change				
	Deep care, will, action				
	Strong sense of place, belonging				
	Place-based/place-specific actions				
	Collaboration/co-creation				
	Including multiple subjective and objective points of view				
	Innovation				

Table 2 (Continued).

Regenerative Community Development Strategies					
General ways to manifest indicators, core characteristics, and RCD Principles that should be made specific to place.					
Category	Strategies	Dimensions		Domains	
		Ecological	Sociocultural	Ecological	Sociocultural
Guiding Consciousness	Holistic approaches				
	Design of systems (not single elements or sub-systems)				
	Developmental processes, goals, outcomes				
	Metadesign (design that shifts worldviews)				
	Ecological design, integrated ecologies				
	Conscious and intentional actions				
	Implementing indigenous knowledge and practices				
Actions	Integrating multiple perspectives				
	Co-creativity				
	Deep participation and dialogue				
	On-going reflective community dialogue, social learning				
	Monitoring, adapting, evolving; adaptive management				
	Collaboration in community and with surrounding communities				
	Citizen science				
	Transdisciplinary scientific research				
	Designed experiments, adaptive design				
	Co-production				
Community-Building (Culture)	Rituals, celebrations, etc. based around healthy living system functioning (especially nature- and place-based)				
	Equity (social and ecological/ environmental)				
	Inclusivity				
	Local economies				
	Community contributions: time/efforts/material goods				
	Satisfying/purposeful livelihoods				
	Guilts				
	Increasing human health, well-being, happiness				
Governance	Full-cost accounting				
	Precautionary principle				
	Polycentric governance, subsidiarity				
	Transparency				
	Accountability				
	Long-term and short-term view				
	Short-term functional goals				
	Long-term developmental goals				
Health	Increasing human health, well-being, happiness				
	Increasing ecological health				

3.2 Community Workshops

3.2.1 Worldviews

The combination of survey, focus group, participant observation, and RCD Evaluation Tool data indicates that participation in workshops shifted participants' thinking towards holism and regeneration (Table 3). The RCD

Framework helped participants understand Hart's Mill as a whole living system that is a part of larger living systems, the social and ecological dimensions of Hart's Mill and how they are connected, how human-nature connections can be mutually beneficial, and the potential of Hart's Mill to be regenerative. One participant stated "I can see the flows more easily now between the human and the natural worlds." The RCD Framework helped participants think in new ways about their roles in Hart's Mill as well as the role of Hart's Mill in its larger contexts: "I can see now that our work is much larger than just us or just creating a model to duplicate" (Workshop Participant). Participants gained a new understanding of the importance of the worldview and social dimensions of community development and the need to spend more time developing them, interactions amongst infrastructure and the social and ecological dimensions of community development, and across-scale relationships and flows. This understanding gave them a new vitality and focus on relationships, playing value-adding roles, mobilizing guilds, and creating health and healing across scales, actively transforming the local, regional, and global communities of which they are a part.

Participants began implementing living systems thinking and applying it to Hart's Mill with specific regenerative community strategies and goals. For example, participants were able to connect and move between ecological and social dimensions, product and process domains, and multiple scales and flows. Discussions of integrated rainwater catchment and use to improve ecological health of the community morphed into discussions of how to make these flows apparent and beautiful for community members to see, appreciate, enjoy, and learn from, which morphed into discussions of how to nurture a culture that treats water and other flows as sacred, connecting, and life-giving. Further, water was explored as a connecting flow at the scale of the larger watershed, with strategies to increase its health explored (see "*Regenerative Development and Design Concepts*" below).

Participants experienced and found valuable the emergence that occurs in dynamic group processes. Emergent social learning and a shift in consciousness occurred in the group as they collectively realized that water is an essential issue to be considered for self-sufficiency and whole system health. One participant stated "I took for granted before [the workshops] that water is plentiful here, and I didn't think about it beyond how to get it on and off site through pipes. Now I understand that it is essential for the health of our community and what we are doing as a community." These shifts in consciousness resulted in a sense of a "deeper than deep connection with the group, with place, and being able to make better decisions now" (Workshop Participant). Further, participants understood that RCD is first and foremost a process of individual transformation that cascades upscale.

3.2.2 Regenerative Development and Design Concepts

Development and design concept data also indicate a shift in thinking from efficient and largely fragmented to more holistic, regenerative, and interconnected (Table 4). Concepts reflect an understanding of Hart's Mill's unique value-adding role in larger contexts of space and time and the importance of collaborations and growing regenerative capacities. For example, the regenerative concept for Hart's Mill co-created by participants during the workshops indicates that they understand Hart's Mill's unique value-adding role in larger contexts of space and time and the importance of collaboration and growing regenerative capacities:

Hart's Mill is rooted in a connecting place of rich biological and cultural diversity and flows that bring forth vitality and life. At a time of great social and environmental dysfunction, we are called forth as a catalyst for collaborative transformation. We are an agrarian community of learning, inhabiting, practicing, and service committed to healing our relationships to each other and the earth, within Hart's Mill and as an integral part of our larger community.

Table 3. Data indicative of thinking from Hart's Mill

Survey, focus group, participant observation, document, and development and design concept data from Hart's Mill indicate a shift toward more holistic and regenerative thinking occurred as a result of participation in workshops implementing the RCD Framework and Tools. Summarizing descriptions of data representative of the larger data set collected before and after workshops are shown.

Pre-Workshops	Post-Workshops
Mostly focused on the scale of Hart's Mill as a relatively isolated physical and social entity. Problem-focused: Hart's Mill as a model sustainable community, demonstrating a way to solve problems that exist in larger society. Individuals as contributing to the model.	Focus on creating systemic health-promoting connections and relationships across-scale. Potential-focused: Hart's Mill expresses its essence as a connecting place that adds value and actively collaborates to transform larger systems, from local to global scales, to vitality. Individuals also express their unique value-adding roles within the community to support Hart's Mill expressing its essence.
Focused on creating physical structures.	Focus on creating integrated social, physical, and ecological processes and structures.
Infrastructure design concepts focus on efficiency and are disconnected.	Infrastructure design concepts more integrated to create multifunctionality, emergence, and ecological-sociocultural connections and flows.
Little thought of creating collaborations at larger scales to catalyze regenerative transformations.	Understanding of and enthusiasm for creating and working as part of guilds. Connecting with potential guild members.
Working toward an end-point of reducing impact, doing less harm.	Understanding of and desire to build regenerative capacity in the integrated ecological-sociocultural living system across scales.
Belief that water is plentiful and little thought of it beyond how to get it on and off site (through pipes).	Collective realization, through emergence and social learning, that water is an essential element to be considered for self-sufficiency and whole system health and that water connects all life-giving flows. New understanding of the interconnectedness and dynamics of biotic and abiotic, social and ecological, product and process components of Hart's Mill and the larger communities of which it is a part. New sense of "deeper than deep" connection, care, and will to act regeneratively. Living systems thinking applied to co-create specific regenerative strategies and goals. Moved between ecological and social dimensions, product and process domains, and multiple scales and flows. Experienced and found valuable the emergence and social learning that occurs in dynamic group processes.

Table 4. Design and development concept evaluation

Evaluation of development and design concepts from Hart's Mill workshops, using the RCD Evaluation Tool. Data indicate a shift toward more holistic and regenerative thinking and concepts occurred as a result of participation in workshops implementing the RCD Framework and Tools. Concepts are grouped and evaluated according to different levels of action that emerged during workshops: Overall, Watershed Scale, City Scale, Local-to-Global Scale, and Local Scale. All concepts were in alignment with RD Principles and Core Characteristics of Regenerative Living Systems; therefore, these criteria are listed only once at the Overall level. Other criteria listed are from the Strategies and Indicators components of the RCD Evaluation Tool.

Development and Design Concept(s)	Regenerative Community Development Criteria	
<u>Overall:</u>	<u>RD Principles:</u>	
Became increasingly interconnected, flexible, multifunctional, health-promoting, holistic, and regenerative as the RCD process progressed, integrating ecological and social dimensions, process and product domains.	Works in whole systems	Holistic worldview
Understanding of Hart's Mill's unique value-adding role in larger contexts of space and time and the importance of collaboration and growing regenerative capacities.	Grows regenerative capacity	Potential-focused
Regenerative community concept:	Value-adding across scales	Mutualisms/Guilds
Hart's Mill is rooted in a connecting place of rich biological and cultural diversity and flows that bring forth vitality and life. At a time of great social and environmental dysfunction, we are called forth as a catalyst for collaborative transformation. We are an agrarian community of learning, inhabiting, practicing, and service committed to healing our relationships to each other and the earth, within Hart's Mill and as an integral part of our larger community.	Nodal leverage points	
	<u>Core Characteristics of Regenerative Living Systems:</u>	
	Diversity	Multifunctionality
	Redundancy	Flexibility
	Adaptability	Connectedness
	Exchanges/Flows	Interdependence
	Across-scale linkages	Reciprocity
	Modularity	Heterarchies
	Long-term thinking	Reflection
	Holistic & systems thinking & acting	
	<u>RCD Strategies & Indicators:</u>	
<u>Watershed Scale:</u>	Holistic approaches	Design of systems
Catalyze a healthy watershed through community infrastructure, farm, individual and collective behavior, site plan, forestry practices, etc.	Conscious actions	Ecological design
Collaborate with guild members throughout the watershed to co-create systemic health.	Co-creation	Guilding
Use rainwater and grey water multiple times on-site and ensuring it is naturally cleansed in wetlands and bioswales before it flows off-site into the watershed.	Transdisciplinary research	Collaboration
Naturally treat blackwater and use it to irrigate fruit trees.	Long- and short-term views	Social learning
Catch and use as much rainwater as possible by integrating catchment and storage into infrastructure.	Local-scale exchanges	Self-sufficiency
Collaborate with researchers to monitor and improve the quality of water leaving the land.	Designed experiments/adaptive design	
Require education and action for Hart's Mill members about the watershed and health-inducing practices.	Increasing human & ecological health	
Bioswales around agricultural areas and ephemeral ponds clean water before it enters the larger watershed.	Increasing understanding of place	
	Place-based actions	
	Meaningful existence in relationship to place	
	Adaptive monitoring	

Table 4 (continued).

Development and Design Concept(s)	Regenerative Community Development Criteria <u>RCD Strategies & Indicators:</u>	
<p>City Scale: Actively influence urban development in this quickly-growing area by forming guilds supporting regenerative development and design, changing building and zoning codes, and educating others about how to develop regeneratively. Identified and began forming collaborations with potentially important and influential guild members who are supportive of Hart's Mill and could become excited about a larger regenerative vision.</p>	Collaborations Guilding Increasing human & ecological health Adding value up-scale Meaningful existence in relationship to place	
<p>Local-to-Global Scale: Actively assist in the formation of other ecovillages locally, regionally, and globally. Leverage expertise in sociocracy and ecovillage development to create a thriving educational center. Create a financial co-operative that could fund ecovillage and regenerative development.</p>	Conscious actions Holistic approaches Increasing human & ecological health Satisfying/purposeful livelihood Adding value up-scale Social learning	
<p>Local Scale: Increase the amount and health of topsoil. Integrate celebrations and rituals in the design and construction process. Self-build as much infrastructure as possible. Source as many building materials on-site as possible (e.g., wood and clay). Require education about healthy community living. Require community gifting that will increase care for place. Develop cottage industries around healthy and regenerative living. Make ecological processes visible.</p>	Ecological design Conscious actions Local-scale exchanges Increasing human & ecological health Rituals, nature-based & place-based Long- and short-term views Deep care, will, & action Humans as producers	
	Collaboration Self-sufficiency Social learning	

This concept is a significant shift from Hart's Mill's previous vision ("We envision a world in which people live in justice and harmony with each other and the land.") and mission statements ("To actualize Hart's Mill Ecovillage as an agrarian intentional community that is collaborative, creative, and celebratory in all that we do."), which were vague, internally-focused, disconnected from larger contexts, and not reflective of regenerative aspirations (Hart's Mill Ecovillage and Farm, 2018).

Participants' ideas as well as design and development concepts became increasingly interconnected, flexible, multifunctional, health-promoting, holistic, and regenerative as the RCD process progressed, integrating ecological and social dimensions, process and product domains. During workshop 3, participants identified three ways Hart's Mill could be regenerative at the watershed, city, and connected local-to-global scales: 1. Catalyze a healthy watershed through the ways the community lives in their infrastructure, farm, individual and collective behavior, site plan, forestry practices, etc.; 2. Actively influence urban development in this quickly-growing area by forming guilds (i.e., networks) supporting regenerative development and design, working to change building and zoning codes, and educating others about how to develop regeneratively; 3. Actively assist in the formation of other regenerative ecovillages locally, regionally, and globally. Specific regenerative strategies for item 1 included using

rainwater and grey water multiple times on-site and ensuring it is naturally cleansed in wetlands and bioswales before it flows off-site into the watershed; naturally treating blackwater and using it to irrigate fruit trees; catching and using as much rainwater as possible by integrating catchment and storage into infrastructure; collaborating with researchers to monitor and improve the quality of water leaving the land; and requiring education and action for Hart's Mill members about the watershed and health-inducing practices. Participants brainstormed regenerative strategies and guild members for item 2, noting several potentially important and influential members who are already supportive of Hart's Mill and could become excited about a larger regenerative vision. For item 3, participants believe they can leverage their already significant expertise in sociocracy and their developing expertise in ecovillage development to create a thriving educational center as part of their community. They would also like to create a financial co-operative that could fund ecovillage and regenerative development.

Finally, development and design concept data from working with the Integral Perceiving Tool and RCD Evaluation Tool in Workshop 4 exhibited regenerative characteristics and were more regenerative than Hart's Mill's existing concepts. They included the regenerative strategies discussed for item 1 above as well as bioswales around agricultural areas and ephemeral ponds to clean water before it enters the larger watershed, increasing the amount and health of topsoil, integrating celebrations and rituals in the design and construction process, self-building as much infrastructure as possible, sourcing as many building materials on-site as possible (such as wood and clay), requiring education about healthy community living, requiring community gifting that will increase care for place, and developing cottage industries around healthy and regenerative living.

3.2.3 RCD Framework & Components; Suggestions for Improvement

Post-workshop survey and focus group data indicate that participants understood regenerative development and that the RCD Framework and its components functioned as intended (Figure 7, Table 5). Participants found the RCD Framework as a whole and its components helpful and valuable; its structure made sense and was usable. Participants stated that the RCD tools are an "actionable way to integrate qualitative, quantitative, ecological, and social aims, strategies, and measures" (Workshop Participant). They shared that the RCD Framework and components helped them think beyond themselves and Hart's Mill to larger contexts, see Hart's Mill's role within those larger contexts, express Hart's Mill's essence, and focus on potential. For example, one participant stated "At heart this is who we are, and this [Regenerative Community Development] gives us a language to communicate this. I love our regenerative concept."

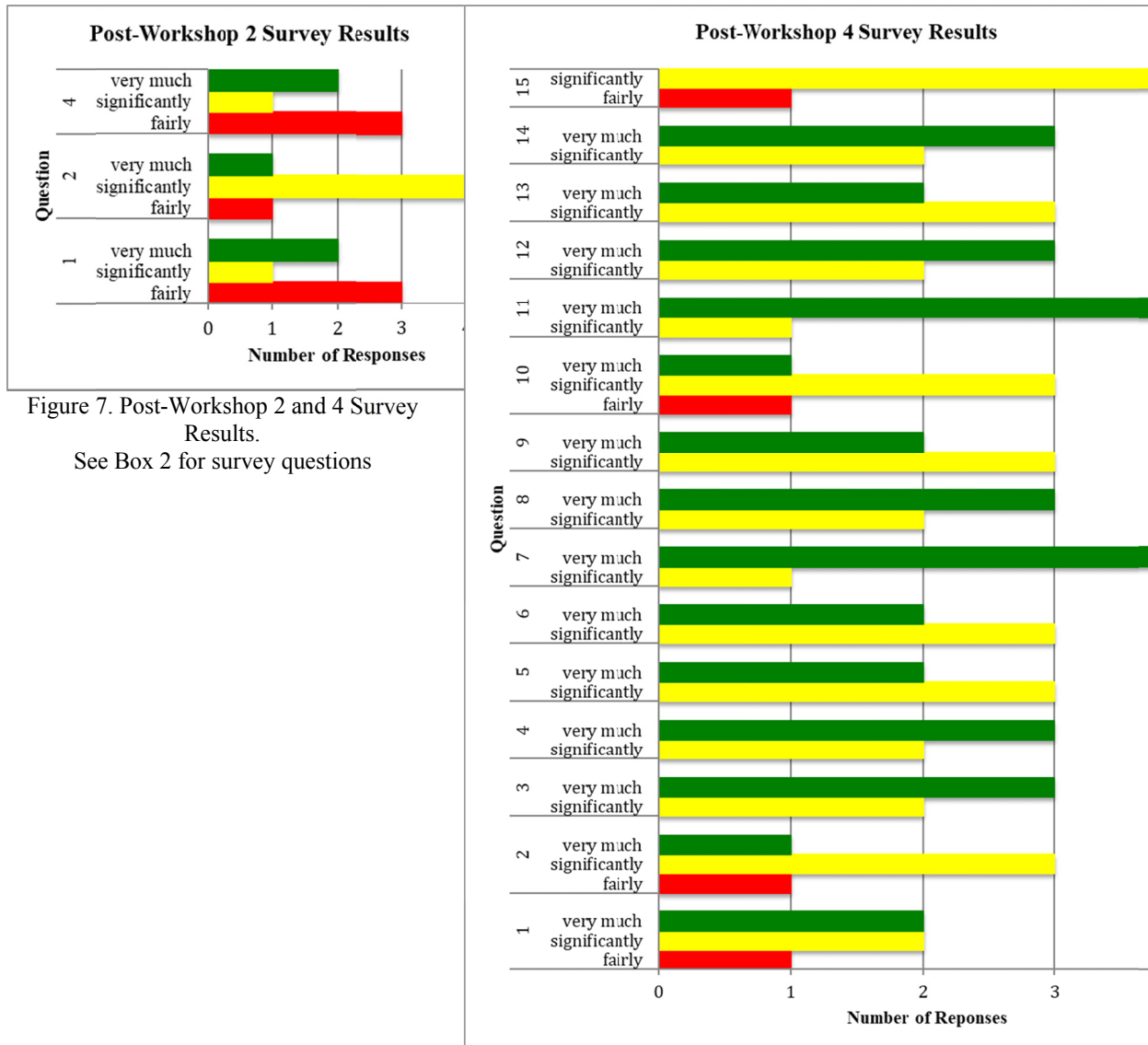


Figure 7. Post-Workshop 2 and 4 Survey Results.
See Box 2 for survey questions

Table 5. Workshop participants' experience of the RCD framework.

Summarizing descriptions of survey, focus groups, and participant observation data on participants' experience indicating how the whole RCD Framework and each of its components achieved their aims as well as suggestions for improvement. Summaries are representative of the larger data set.

Framework Component	Participants' Experience
Whole RCD Framework + Process Tool	<ul style="list-style-type: none"> •RCD helps Hart's Mill articulate and become who it really is at heart, have a bigger vision, and attract who and what it needs to actualize •a progressive process, useful to being actionable with design professionals and Hart's Mill •valued having the time to discuss RCD in Hart's Mill in a group and at some considerable length •appreciated room for flow, flexibility, and emergence in the process •valued having the space for visioning and guided brainstorming •would like to continue the RCD process
Understanding RD	<ul style="list-style-type: none"> •significantly increased understanding of RD, how it differs from other approaches, and how it can be used in Hart's Mill •able to accurately articulate RD's main points and aims
Explore Place + Integral Perceiving Tool	<ul style="list-style-type: none"> •facilitated understanding how Hart's Mill has functioned and could function to be healthy and thriving •helped "see the flows between the natural and human worlds" •helped think to larger contexts and see Hart's Mill's role within them •generated excitement and vitality •resonated with focusing on possibilities instead of barriers, potential instead of problems
Develop a Regenerative Concept	<ul style="list-style-type: none"> •expresses Hart's Mill's essence; could not do this before workshops
Identifying Nodal Leverage Points	<ul style="list-style-type: none"> •using water as a nodal leverage point facilitated further exploration and understanding of Hart's Mill and its context as whole living systems, connect to other elements in the Integral Perceiving Tool, and begin creating regenerative strategies and goals •grounded concepts and made them more usable
Create Collaborations/Guilds	<ul style="list-style-type: none"> •exciting and viable way to achieve larger ambitions and help Hart's Mill actualize
Identify Goals & Strategies + RCD Evaluation Tool	<ul style="list-style-type: none"> •see the value in the tool and how it helps integrate dimensions and domains •couching indicators within characteristics of healthy living systems and regenerative principles makes senses •tool effective in conjunction with Integral Perceiving Tool, using water as a life-giving flow, and with facilitator guidance •a positive step towards connecting across scales, from the level of individuals to the watershed, and exploring regenerative possibilities •expanded awareness of place and facilitated better understanding of how human-nature relationships can be mutually beneficial •increased understanding of the ecological and social dimensions, process and product domains of regenerative development and how they are integrated and evolve in space and time •facilitated understanding, in a grounded way, the potential of Hart's Mill •participants already using systems thinking in their professions more easily worked with the tool and adopted living systems thinking •more facilitation and time would have been helpful
Visual Illustrations, Figures, Maps	<ul style="list-style-type: none"> •very helpful for facilitating holistic and regenerative thinking
Suggestions for Improvement	<ul style="list-style-type: none"> •Integrate more experiential learning, including spending time on the land •Involve more practitioners •Incorporate RCD into existing Hart's Mill practices •Create a RCD Best Practices Toolkit •As part of the long-term RCD process, hold regular retreats to assess vision and mission goals based on regenerative development guidelines

Participants reported that the workshops and their outcomes generated "renewed excitement and vitality," largely due to "flowing with possibilities and potential instead of focusing on barriers and solving problems" (Workshop

Participant). Workshops expanded participants' "awareness of place," helped them understand in a more grounded way the potential of Hart's Mill and understand better how human-nature relationships can be mutually beneficial.

Participants appreciated having the opportunity to think systemically and focus on potential. They would like to continue using the RCD Framework to guide their community development processes.

The RCD Evaluation Tool required facilitator guidance and integration with the Integral Perceiving Tool to be usable by participants, although those who used systems thinking in their careers were more capable of using the tool without facilitation. Using water as a nodal leverage point helped participants ground the concepts presented in the Evaluation Tool and the RCD Framework as a whole, further explore and understand Hart's Mill and its context as whole living systems, connect to other elements in the Integral Perceiving Tool, and begin co-creating regenerative strategies and goals that included potential guild members. Participants articulated that this process was a positive step towards connecting across scales, from the level of individuals to the watershed, and exploring regenerative possibilities. Participants shared that workshops helped them better understand the ecological and social dimensions, process and product domains of regenerative development and how they are integrated and evolve in space and time.

Participants' suggestions for improving the RCD Framework include integrating more experiential learning, involving more practitioners, incorporating RCD into existing Hart's Mill practices, and creating a RCD Best Practices Toolkit. One participant suggested having "regular retreats where we assess vision and mission goals based on regenerative development guidelines" would be valuable.

3.2.4 Conducive Factors and Impediments

Factors that are conducive to and impede successful engagement with RCD include openness to RCD, educational level, and time to work with the concepts and allow RCD processes to unfold. A complete list of factors is reported in Table 6.

4. Discussion

Below I discuss (1) the RCD Framework and Tools, (2) shifts in thinking of workshop participants as well as development and design concepts, (3) factors conducive to and impeding RCD, (4) limitations of this research, and (5) suggestions moving forward. Overall, my research shows that the RCD Framework achieved its intended aims of facilitating shifts in thinking and development and design concepts toward more holistic and regenerative ones. My findings, in conjunction with other RD research and practice, suggest that giving the RCD process enough time to unfold, with skilled facilitators and practitioners, will support the intended shifts in worldviews and development and design outcomes. However, this study was brief and only the beginning of the RCD process for Hart's Mill. The ultimate impact of a physical community depends upon how it is built, inhabited, and evolves over time. Therefore, longitudinal studies from the inception of projects through construction and inhabitation are needed. I suggest the RCD Framework be tested in a diversity of communities, contexts, and scales and include long-term research in RCD processes and outcomes.

4.1 RCD Framework and Components

My in-depth review of literature and practice showed that holistic sustainable development tools should be based on how healthy living systems function and aim for thriving. They should focus on the community-scale and develop the understanding, thinking, and actions of communities implementing them toward place-based holism and regeneration across scales (Abson et al., 2017; Bastianoni et al., 2019; duPlessis & Brandon, 2015; duPlessis & Cole, 2011; Fischer et al., 2012; Jørgensen et al., 2015; Luederitz et al., 2013; Mang et al., 2016; Meadows, 1999; Reed, 2007; Reed et al., 2010; Regenes Group, 2016; Wallner et al., 1996; Waltner-Toews & Kay, 2008). Cultivating the care, will, and capability of communities to manifest the potential of place and be regenerative catalysts in an ongoing process is critical (Mang et al., 2016; Reed, 2007; Regenes Group, 2016). This stands in contrast to existing sustainable development and design tools that are fragmented, product/end-result focused, aim to reduce harm or increase efficiency, not specific for different scales, and ignore the thinking underlying (un)sustainability (Feleki et al., 2018; Jørgensen et al., 2015; Luederitz et al., 2013; Tippet et al., 2007).

Table 6. Factors conducive to and impeding RCD in Hart's Mill

Conducive Factors	Impeding Factors
<ul style="list-style-type: none"> •Openness: Participants were willing to immerse themselves in a different approach. •Familiarity with RD: Several participants had some familiarity with regenerative development and design concepts. •Educational level: Most participants had graduate degrees. •Leadership: Participants were leaders in the community and were used to working together in collaborative, co-creative ways. •Practitioner involvement: A general contractor was present for the third and fourth workshops and provided ideas for specific regenerative strategies and indicators that moved the conversation forward. •Connectors: Three participants served as connectors between those who engaged more cognitively and those who engaged more emotionally, which seemed to help facilitate greater collaboration, emergence, self-transcendence, and holistic group processes. 	<ul style="list-style-type: none"> •Time: Participants commented that spending more time working with the RCD Framework would be helpful but finding the time is difficult. Further, RCD is a process that takes continual work and revisiting, which could become tiresome for people. •Complexity: Some participants noted that it was challenging to hold everything at once—ecological, sociocultural, process, product. •Novelty: Some participants were uncomfortable when faced with a task that required new ways of thinking and acting (i.e., using the RCD Evaluation Tool). •Uncertainty: Inherent uncertainty associated with RCD can be uncomfortable and makes the process of co-creating community more difficult. •Educational level: The participant with the least amount of formal education had the most difficulty working with the concepts. •Practitioners: Finding practitioners who can support RCD is challenging but is necessary for efforts to be integrated. •Funding: Regenerative communities face funding challenges due to unfamiliar ownership models (i.e., co-operative ownership) which could result in slower, less ambitious, or, more often, failed initiatives. •Collaborations: Collaborating with communities that are part of larger systems can be challenging since often a sense of community is lacking and mistrust is present. Additionally, participants doubted their capability to effectively change the trajectory of degenerative rapid growth in the region. However, the idea of forming collaborative guilds to achieve such aims seemed more realistic.

To achieve these aims, I created the RCD Framework to reflect how whole, healthy living systems function by integrating ecological, sociocultural (e.g., worldviews, paradigms, values, behaviors), spatial, and temporal dimensions of living systems and their dynamic relationships. It outlines general living systems principles, indicators, and strategies that should be made locally specific. It integrates the process and product domains as well as qualitative and quantitative components of development, planning, and design initiatives. Finally, it is flexible, adaptable, and somewhat hierarchical, incorporating the most recent understandings in ecology, complex adaptive systems science, planning, and design (Berke, 2002; Boyle & Kay, 2008; Gunderson & Holling, 2002; Holling, 1973, 2004; Jørgensen et al., 2015; Kay, 2008; Waltner-Toews & Kay, 2008; Walker et al., 2006).

Within the RCD Framework, the RCD Process Tool guides the overall process; the Integral Perceiving Tool facilitates greater understanding of the relationships that have given or could give life to a place in space and time, across scales; the RCD Evaluation Tool helps inhabitants understand in more detail the direction of development of their community and guide it in place-specific ways. Together, the tools aim to dynamically guide inhabitants to be regenerative change agents in their communities, helping them answer the question “How can we enable healthy patterns of relationship, change, and wholeness in this place and be part of those patterns?”

In my pilot community, as discussed below, the RCD Framework and components achieved their intended aims of

shifting worldviews and development and design concepts toward holistic and regenerative. Further, participants experienced the framework as a whole and its components valuable and useful. They helped the community envision and express previously untapped potential that generated renewed excitement and enthusiasm for the task of co-creating a thriving community. Using the Integral Perceiving Tool in conjunction with the RCD Evaluation Tool as part of the larger RCD Process helped participants think across scales of space and time and connect dynamic system elements. Participants understand that this is a process of continual unfolding that takes time and will, at least initially, require guidance by a RCD facilitator; they are willing to commit to the process. The need for more time and guidance to be able to think and act regeneratively has been expressed in other RD work (Hes et al., 2018; Hoxie et al., 2012; Reed, 2018; Regenesis, 2017). Experienced RD practitioners note that it typically takes three years for collaborating clients to think and act regeneratively, after which annual “check-ins” are recommended (Murphy, 2018; Regenesis Group, 2016; Reed, 2018).

4.2 Shifts in Thinking, Development and Design Concepts

Although there is anecdotal and indirect evidence, this is the first study to directly and empirically assess whether RD processes shift thinking in participants to become more holistic and regenerative (e.g., Hes et al., 2018; Mang et al., 2016; Plaut et al., 2016). Further, this is the first study to integrate ecology, complex adaptive systems science, sustainability, design, planning, and regenerative development and design to create and apply an evaluation tool to RD processes and outcomes. Results indicate that, overall, the RCD Framework achieved its aim—shifting thinking and development and design concepts to be more holistic and regenerative.

The RCD Framework helped participants understand how Hart’s Mill functions as a whole living system that is part of larger living systems, helped them think in new ways about Hart’s Mill’s and what it could be like, and in new ways about their individual roles in the Hart’s Mill community. It helped them translate their new thinking into practical regenerative development and design concepts. Thinking and concepts shifted from project-focused to incorporating context and playing value-adding roles across scales; from focusing on efficiency and doing less harm to effectively enhancing life-giving flows across scales; from considering components of the community in relatively isolated ways to integrating components and considering their systemic effects; from thinking about how to create Hart’s Mill in relatively isolated ways to thinking about how to collaborate in guilds with others in the larger community to regenerate systemic health; and from focusing on mostly physical aspects of the community to understanding the importance of integrated sociocultural and ecological aspects.

Relatedly, the RCD Framework helped participants develop the deep care and will to act regeneratively necessary for RCD processes to be successful (Mang et al., 2016; Reed, 2007). Participants noted that the RCD Process and Tools helped them feel an “expansion of consciousness,” a sense of “deeper then deep” connection with each other and the land, and renewed life and enthusiasm about the community’s current and future state. Participants demonstrated will by stating that they want to be a regenerative community, adapting what they are currently doing to be regenerative, aligning future processes with RCD, and developing place-based regenerative strategies and indicators. Since the workshops, they have made some progress towards these goals.

Results of this study indicate that participants struggled with the complexity of using the RCD Evaluation Tool directly. What was more conducive to developing the holistic and regenerative thinking and outcomes the tool is intended to cultivate was the facilitator using the tool in conjunction with the Integral Perceiving Tool to guide participants through the process. This suggests that a simpler RCD Evaluation Tool that communities can use to assess and guide specific place-based efforts with less facilitator guidance could be necessary and presents an opportunity for future research. A series of tools from the level of beginner to advanced could help communities develop the capacities necessary to be regenerative catalysts in living systems.

4.3 Factors Conducive to and Impeding Regenerative Development

This study identified several factors that could be conducive to or impede RCD and should be considered explicitly in RCD processes. These factors were identified as important in the RCD Evaluation Tool based on existing scientific and practitioner evidence; thus, this research lends empirical support to the importance of these factors and their relationships in RCD processes.

Perhaps most important factor is participant willingness to engage with RCD. RD literature and practice identifies this willingness as critical for successful RD processes; without an openness to change, transformative processes are very difficult to implement (Abson et al., 2017; Hes, et al., 2018; Murphy, 2018; Reed, 2007; Reed, 2018). Similarly, allowing enough time for the RCD process to unfold and learning to accept uncertainty is crucial. The participants in

this study appreciated making the time to devote to RCD and are willing to do so moving forward; however, this might not be the case in other communities, where there is pressure for developers to build quickly, inhabitants are busy with their daily lives, or power dynamics such as social justice, political conflicts, and vested interests present barriers to even considering significantly different processes and outcomes (Axinte et al., 2019). Even in Hart's Mill, participants articulated that they understand the emergent and uncertain nature of RCD and are willing to work with it, but this makes securing funding difficult, drawing attention to the financial flow necessary for regenerative communities. This calls into question when and how RCD processes can or should be used in communities, especially those in which a willingness to change and devote time to RCD processes is absent. Testing a variety of different approaches that draw on interactions with less receptive communities could be helpful for future iterations of this work (e.g., Haines, 2015).

An existing familiarity with systems thinking, sustainable and ecological design, collaborative processes, and, relatedly, educational level, also appear to facilitate RCD processes. Additionally, participants who serve as connectors in the group, bridging different ways of thinking and relating to the world (i.e., boundary participants), seem to be beneficial to creating an emergent and self-transcendent group dynamic. While the RCD Framework is designed to develop these capacities, possessing them beforehand seems to be conducive to the process. Also helpful for this emergent group dynamic seems to be the ability to explore the complex relationships, dynamics, and potential of one's place through a flow all participants can understand and connect with, thus facilitating deeper understanding, care, and will. In this study, the flow was water, and I hypothesize water could be a useful nodal flow to leverage in other living systems, as other work has shown (e.g., Benne & Mang, 2015; Forman, 2008; Mang et al., 2016; Musacchio, 2009; Tippet et al., 2007). As the facilitator of this RCD process, I also experienced using water as a specific flow helpful for grounding concepts; facilitating increased understanding, care, and will; and producing actionable outcomes for the community.

Having a skilled facilitator capable of helping people work with the complexities of living systems and hold space as participants learn new ways of knowing and relating to their place and themselves is critical. Living systems thinking is not natural or easy for most people in western cultures and requires training. The two participants in the workshop who were most easily able to think systemically were already implementing systems thinking in their professional lives. Immersive, experiential learning could be helpful in facilitating systems thinking, as suggested in literature and practice (Gaia Education, 2017; Meadows, 1999; Sipos et al., 2008). Additionally, involving regenerative design and development professionals from the beginning of processes can be very helpful (Reed & The 7 Group, 2009). In this study, the general contractor that was present for 2 of the workshops had some familiarity with ecological and regenerative design and was able to contribute technical expertise that helped move the process forward. Having more professionals present likely would have been helpful, as the entire design team—professionals and inhabitants—are necessary for RCD to be successful (Hes et al., 2018; Reed & The 7 Group, 2009). Additionally, involving guild members (i.e., collaborators) from the larger community is necessary to fully manifest regenerative potential, but this could be difficult in a context suspicious of or hostile to such endeavors. Again, the RCD Framework is meant to transcend this potential obstacle, but it requires time and effort.

4.4 Suggestions Moving Forward

Limitations of this research include the small number and diversity of participants, the short amount of time spent in workshops, the short duration of the study relative to the overall RCD process, the absence of design team members (e.g., architect, landscape architect, engineer), the role of the facilitator, and potentially the time gap between workshops 2 & 3. Despite these limitations, this study is the first to create and pilot a holistic RCD Framework as well as directly and indirectly assess shifts in thinking amongst participants in RD processes. The analytical approach used to assess the design process and outcomes provides a methodological contribution for future planning, implementation, and assessment of regenerative community projects.

The results of this study suggest that thinking and development and design outcomes can shift toward holism and regeneration by implementing the RCD Framework. Although the scope of this study is small, RD literature and practice suggest that similar shifts in a variety of contexts can occur (e.g., Benne & Mang, 2015; Hes et al., 2018; Mang & Reed, 2012; Mang et al., 2016; Murphy, 2018; Reed, 2018). However, research is limited. My research only progressed through the beginning stages of identifying strategies and goals, and long-term integrated ecocultural outcomes must be evaluated to assess whether and how RCD processes are achieving their aims. Since RCD is a continual process of evolving the self in relationship to the larger living systems of which one is a part (Mang & Reed, 2012), long-term longitudinal engaged research in a variety of contexts is necessary to advance the field and

address the above limitations. Long-term research can address questions such as how much intensive work with a RCD facilitator is necessary to achieve RCD aims; how often to revisit the RCD process and conduct RCD evaluations; how best to integrate new knowledge into existing RCD processes; how scale and context affect RCD processes and outcomes; how RCD can be implemented in less-than-willing communities; and to what extent and when which design team members should be involved in the RCD process. Additionally, since RCD is intended to be a process that, ultimately, communities implement with only periodic RD practitioner guidance, creating evaluation tools that can be used by communities with less facilitator guidance would be beneficial. Finally, as mentioned above, evidence from RD practitioners and literature suggests that key design team members (including inhabitants) need to be part of the RCD process from inception to inhabitation (Benne & Mang, 2015; Hes et al., 2018; Mang & Reed, 2012; Murphy, 2018; Plaut et al., 2016; Reed, 2018).

It would be worthwhile to test the RCD Framework at larger scales—larger communities, landscapes, cities, regions—within a regenerative landscape development paradigm that aims to catalyze regeneration at landscape scales and above (Gibbons et al., 2018). The landscape scale, in particular, has been identified as a key scale to mediate between local and regional levels (Gibbons et al., 2018; Hobbs, 1997; Opdam et al., 2013). The RCD Framework can be used at the landscape scale and is designed to incorporate co-production and co-design, which have been shown to be successful in producing more integrative and sustainable development and design outcomes at this scale (Bos et al., 2013; Reed et al., 2010; Watson, 2014).

More broadly, practitioners capable of facilitating RCD processes and recommending and implementing regenerative strategies, technologies, and indicators are needed. Trainings and degree programs supporting RCD could be helpful. Funding mechanism—perhaps co-operative social enterprise banks (e.g., National Cooperative Bank) and public-private partnerships—for regenerative communities are also needed.

5. Conclusion

The aim of regenerative community development is to facilitate better understanding of and healthy dynamics and relationships in the systems of which humans are a part, catalyzing transformation to thriving living systems across scales. It offers an alternative approach to sustainable development that focuses on building the capacities in whole living systems to manifest potential and co-create continually higher levels of health and well-being. Because it works across scales, addresses worldviews as the root cause of (un)sustainability, and follows nature's principles, it is a viable approach to transform landscapes, cities, regions, and beyond toward thriving (Gibbons et al., 2018).

This study supports a shift in the field of sustainability toward regeneration and thriving living systems by integrating science and practice from ecology, complex adaptive systems theory, sustainability, design, and planning with regenerative development and design theory and practice to create and pilot a Regenerative Community Development (RCD) Framework. The study community experienced the RCD Framework as very helpful, enabling them to express their identity as a community, giving them renewed excitement about the work and life ahead of them. It helped them elevate their aims from sustainable efficiency to co-creating thriving living systems. Based on the findings of this and other regenerative development work, I expect that any community at any scale can be regenerative by deeply involving the people who already do or will live there and implementing an RCD Framework in contextually relevant ways. In RCD, communities are viewed as dynamic, evolving, co-creative entities composed of human and more-than-human inhabitants of a place. Such a shift in thinking will be challenging given the capitalistic model and mechanistic worldviews that dominate western society, are spreading globally, and even infiltrate sustainable development. But it just might be what is necessary to create prosperity and abundance for all life through all time.

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