Designing from Place:
A Regenerative Framework and Methodology

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Abstract
The radical changes required for Earth to "remain fit for human habitation" require a change in worldviews from 'mechanistic' to 'ecological'. A key question is: how can those working on the built environment—a field with major impact on global resources and systems - best support a smooth and timely transition? It is proposed that design practitioners can facilitate that response in the built environment through the development, application and evolution of comprehensive new methodologies, explicitly shaped by a regenerative sustainability paradigm. It is further proposed that successfully evolving a regenerative practice requires going beyond just adopting new techniques to taking on a new role for humans and designers, and a "new mind," and learning how to work "developmentally." As an example of how a consciously held worldview shapes a practice, an actual regenerative methodology, developed and evolved over 16 years of practice, is explored in detail. A framework, adapted from accepted scientific methodology protocols, is used to structure this exploration, differentiating the different elements and levels, showing how they work as an integrated system and revealing the underlying premises and assumptions behind the choice of aims, strategies, methods, and progress indicators.

Key words: regenerative development and design, living systems, place, story, permaculture

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Introduction

The regenerative sustainability paradigm, as described in du Plessis (2012), is emerging out of the transition from a 'mechanistic' to an 'ecological' or living systems worldview. The premise held by du Plessis and others that the radical changes required for Earth to "remain fit for human habitation" cannot happen without this transition in worldview complex[i] and practices makes the stakes in this particular transition very high indeed. (*ibid,* Metzner, 1999; Elgin & LeDrew, 1997). [ii] Though often marked by phenomenal creativity, these transitions are also prone to struggle, confusion and even stagnation. How then can those who work on the built environment—a field that has a disproportionate affect on global resources and systems - best support a smooth and timely transition?

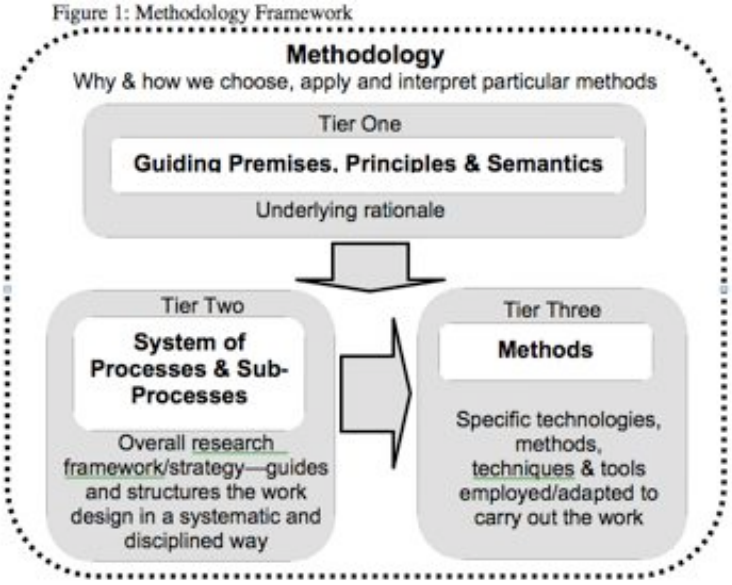
Transitions to new worldviews "take hold" as the new paradigms they give rise to become embedded across disciplines and fields of endeavor, increasingly being manifested as accepted standards, protocols and processes. This embedding process is enabled at the practice level by the development and application of comprehensive methodologies that are consciously rooted in the new worldview complex. (Kuhn, 1962, Sanford & Mang, 1992) The first step toward development and application of such methodologies is awareness of how one's worldview, (which "acts as a 'filter' through which phenomena are perceived and comprehended") influences which methods are chosen and how they are applied. (Miller & West, 1993, p. 3) Discussions of regenerative approaches that start with descriptions, examples and assessments of specific methods or techniques miss this step and the deeper understanding and judgment that could otherwise be achieved. This paper explores an actual regenerative methodology as an example of how a consciously held worldview shapes new practices that can support a smooth and timely transition within the built environment.

The early regenerative practitioners who developed this methodology drew explicitly on an ecological worldview, and over the past 16 years further evolved their understanding of that worldview complex and the methodology through their practice. The framework depicted in Figure 1 provides the structure for this exploration. It is used as a lens for differentiating the key elements and levels of this methodology, and seeing how they work together in a practice as an integrated system.

The framework in Figure 1 is adapted from protocols developed for scientific/academic research in order to reveal the thinking behind the choice and application of particular methods, tools and strategies (i.e. resources), and relate their use to specified aims. (Mang, 2009; Kothari, 1990). It has three levels or tiers:

1. the philosophical assumptions and principles that provide both the "lens" and the underlying rationale for organizing, choosing, applying and interpreting particular methods
2. the overall system of methods or processes that guides and structures work in a systematic and disciplined way
3. specific methods, techniques and tools utilized in the work.

Figure 1: Methodology Framework



The first tier assumptions, which reflect the system of beliefs or worldview complex held by the researcher or practitioner, shape the thinking behind tier two (development of the overall framework/strategy for the work) and tier three (the menu of specific technologies/methods seen as appropriate to the methodology). The overall strategy in tier two in turn shapes the specific methods selected and how they are adapted for use in a specific project.

The framework is useful for understanding, assessing and evolving the thinking that can create and evolve a regenerative methodology. By tracing the thinking further "upstream", i.e., from source (worldview/paradigm) to application, it also can enrich the dialogue taking place among advocates for a sustainable built environment.

The example of a regenerative methodology presented here is drawn from an actual practice.[iii] Using the methodology framework as a lens, some of the key underlying premises and concepts are explored further.

Regenerative Methodology Tier I: Underlying Premises and Semantics

The four underlying premises, and the interpretation of six core organizing concepts are explored. These are considered by the authors to be particularly significant in differentiating the regenerative development and design methodology described here. Worldviews are coherent systems of beliefs that shape how individuals interpret and interact with the world by shaping *how* they think and, consequently, *what* they think about. They define what can be known or done and how, and what goals should or even can be pursued. (Koltko-Rivera, 2004) The beliefs and assumptions they include are "superordinate in that they provide the epistemic and ontological foundations for other beliefs within a belief system" (Koltko-Rivera, 2006, pp. 11).

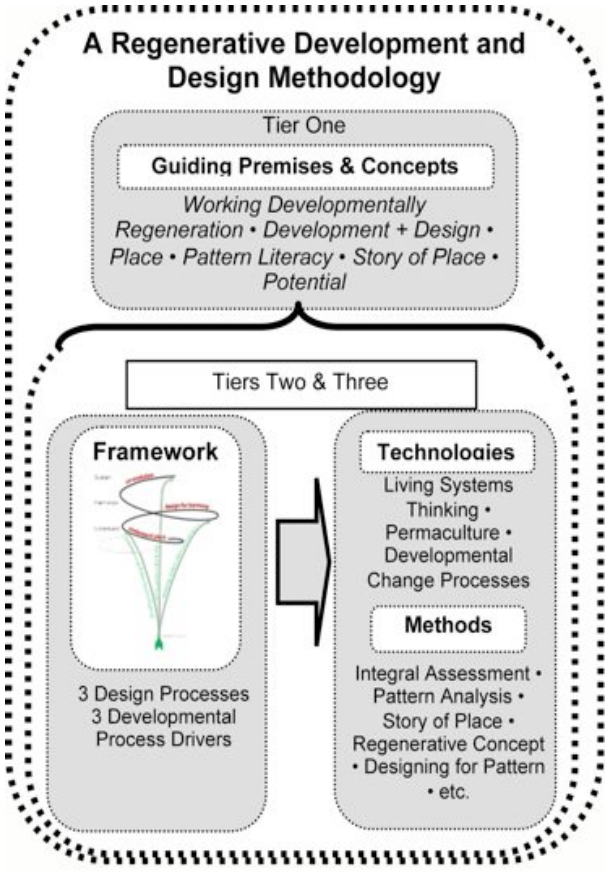


Figure 2: Maps the relationship of the key elements of the Regenerative Development and Design Methodology against the methodology framework shown in Fig.1.

Importance of Tier One

Each time design practitioners select a particular set of methods and techniques to address a design problem or to measure and evaluate the solution, they express, implicitly or explicitly, what they believe is the ethically appropriate way to work based on their worldview complex. Though the rationale for decisions is usually explicit (e.g., why this amount of floor space or this HVAC system; etc.) the rationale for choosing the methods by which the decisions are made is usually implicit to the point of invisibility. While accepted research protocol requires articulation of the premises that provide the rationale for how work is conducted and interpreted, such rigor is generally not necessary in the day-to-day work of a design practice. This becomes a significant barrier when seeking to integrate, or move between different sustainability approaches that are products of very different worldview complexes.

When a worldview complex becomes invisible, it circumscribes the capacity to evolve one's work. On the other hand, when conscious, it can "provide us a pattern for the ongoing evolution of ourselves and our organizations (helping) us improve our way of working… (and providing) guidance in regard to evolving the self engaged in the doing as well as the doing itself." (Krone, 1992, pp. 3-4)

Premises of regenerative methodology

1. Role of Humans. Green or eco-efficient design is insufficient because it misses the real potential that arises out of the human presence on this planet: the possibility of organizing human activities so that they continuously feed and are fed by the living systems within which they occur. It is not enough to aspire to mitigate the effects of human activity—people need to take their place again as a part of nature.

   From this perspective, regenerative development and design means the reconnection of human aspirations and activities with the evolution of natural systems—essentially co-evolution. It means shifting human communities and economic activities back into alignment with life processes. It implies every human settlement organizing itself around evolving its watershed's capacity to support life. The creative and economic activities of human communities can be directed toward the development of human potential through harmonization of and with the dynamic energies of nature.

   This is not preservation of an ecosystem, nor is it restoration. Instead, it is the continual evolution of culture in relationship to the evolution of life. This defines the work of regeneration.

2. A New Mind. The first step on the path to regenerative work is not a change of techniques but a change of mind. This entails bringing a new way of thinking about how buildings are planned, designed, constructed and operated, as well as about the roles of designers and inhabitants. Change of mind is not just adopting a few new "mental models." It means bringing an entirely *new* mind, one that holds a very different worldview and approaches the world from a very different paradigm than what has shaped buildings for centuries. (Haggard *et al*, 2006; Lyle, 1984, 1994) As Ben Haggard describes it, "Regenerative development derives much of its creative power from a fundamental shift of focus, a flipping of paradigms. Rather than seeing a site, or a development project, as a collection of things (slopes, drainages, roads, buildings, etc.), a regenerative designer cultivates the ability to see them as energy systems —webs of interconnected dynamic processes that are continually structuring and restructuring a site." (Haggard, 2002)

3. A New Role. The ecological worldview and the regenerative paradigm have significant implications for the role of the designer as well as the process and definition of design. The role of a gardener, particularly if seen as a gardener in and of place, is a useful metaphor for exploring the role of design and designers in a regenerative practice. (Ramo, 2010) A gardener is consciously designing an ecosystem, nested within other ecosystems, in order to create and maintain the conditions for healthy growth through seasonal cycles and environmental perturbations. Success clearly requires an understanding of how living systems work, or 'ecoliteracy' (Orr, 1992). A regenerative practitioner designs an ecosystem that integrates natural and human living systems to create and sustain greater health for both. In addition to ecoliteracy, the participatory and co-creative nature of a regenerative process also requires psychological and cultural

literacy, and the ability to tap the latent creativity of a community by weaving broader sets of expertise and insight into the design process (Landry, 2006; Mang, 2009).

4. Working Developmentally. Regeneration depends on a developmental process that improves the value of the whole, works to take systems to the next level, and evokes a set of higher order aims.

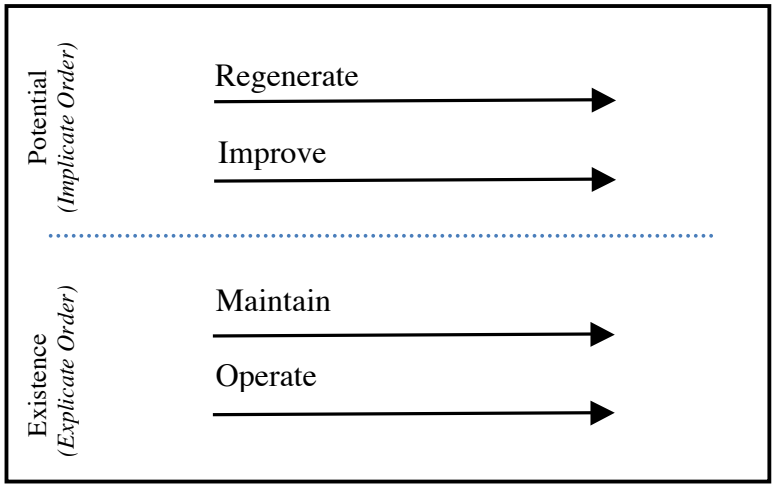
Organizing and Ordering Concepts

Within the larger influence of the ecological worldview, six specific concepts shaped the regenerative sustainability paradigm and how Regenesis developed its practice: regeneration, development + design, place, pattern literacy, story, and potential.

Regeneration

Differing worldviews contribute to the ambiguity with regard to the meaning of 'regeneration'. From a mechanistic worldview, it makes sense to argue, as some engineering firms have done, that closed loop systems are both regenerative and universally applicable, needing only to be scaled up or down to fit a particular project. From an ecological worldview, such a use of the term would be nonsensical since regeneration is an inherent capacity within a living and open system. The authors' definition of regeneration reflects the ecological perspective and is perhaps best understood in the context of a systemic framework known as the Levels of Work. Developed by organizational architect and systems thinker Charles Krone in the 1970s (Krone, 1992), the framework draws from living systems theory and the work of David Bohm. It depicts four levels of work that every living system or entity must continually engage in if it is to be sustainable in a world that is nested, dynamic, complex, interdependent and evolving. The levels form a hierarchy, with the bottom two focused on working on existence (what is already manifested) or "below the line work," and the top two involving work on potential (what exists but is not yet manifested), "above the line work." The framework indicates how to continually evolve the value-generating capacity of a system as a whole by revealing its potential in relationship to larger systems. Krone's original terms for each level are depicted in Figure 3.

Figure 3: Levels of Work Framework



One of the challenges in expanding the use of regenerative approaches is that they are often seen as alternatives to or in competition with other sustainability practices, inviting an either/or choice. Understanding regeneration as a series of differentiated levels of work offers an ecosystem perspective which can reveal both the interrelatedness and necessary interdependence of the different sustainability approaches, as well as the distinctive niche each occupies. For example, the green building movement focuses on increasing efficiency of energy and material use, removing variances such as toxicity, and achieving standards through capable and disciplined practice. Thus, it is at the 'operate' level of work. At the 'maintain' level of work are efforts focused on resilience (e.g., the Transition Towns movement). They endeavor to maintain the desired effect and effectiveness of operations in the face of perturbations and environmental uncertainty.

Failure to skillfully manage these two lower levels of work can easily threaten the entity's very existence, usually depleting the larger systems in which it resides. Indeed, it was the recognition of this failure in the building and development industry that gave rise to green building to begin with. Inability to manage these two levels also undermines any efforts at regeneration or systemic improvement—many a project designed to stimulate neighborhood or community regeneration has crashed due to basic organizational incompetence, or failure to anticipate and prepare for outside challenges.

At the same time, engaging in only 'operate' and 'maintain' work in an ecological world is equally hazardous from a sustainability standpoint. Work below the line deals only with what is already in existence and therefore ruled by entropy. If engagement is limited to those realms, then it is impossible to move beyond slowing the rate of depletion and degradation—materially, psychically and spiritually. In a continually evolving world, evolution is, in Kauffman's (1995) terms, the primary concern, and sustainability is a process for meeting this concern. This requires all four levels working in consonance. Regeneration or regenerate level work produces "the field within which the improvement of living systems can take place," and provides a coalescing direction wherein "all levels of work become an integrated whole, and distinctively higher levels of ideal, practice, and actual performance and value generation are attainable" (Krone, 1988-95).

The influence of the levels of work framework can be seen in a number of aspects of the regenerative technologies and methods described below, including the emphasis on starting with revealing the essence/potential of place, then the role of the project within that, as the coalescing and direction setting context for aligned engagement at the other levels of work.

Development+Design

This concept is a necessary corollary to regeneration. In large part, regenerative design continues to be seen as a vehicle for reversing the damage caused by source-to-sink one-way flows, and creating self-renewing resource systems, as articulated in John Tillman Lyle's (1994) pioneering work. Narrowing the purpose of regenerative design to this, the first order or threshold work of sustainability, largely ignores wider applications (economic, agricultural, education, cultural, etc.) (Lyle, 1993, 1994). Additionally, this narrow scope is often defined within the boundaries of different professional disciplines rather than seeing these disciplines as parts of an integrated system that includes community engagement and stewardship.[iv]

This narrowing diminishes the concept of regenerative design. Proponents of regenerative development argue that, in light of this, it is even more important to see regenerative design and regenerative development as necessary corollaries, i.e. distinct yet synergistic aspects of a regenerative methodology essential to ensuring the broader and deeper scope of engagement required. [v]

It is possible to characterize the work of regenerative development as having two interdependent aspects: 1) It determines the right phenomena to work on, or to give form to, in order to inform and provide direction for design solutions that can realize the greatest potential for evolving a system, and 2) It builds the capability and the field of commitment and caring in which stakeholders step forward as co-designers and ongoing stewards of those solutions.

Regenerative design works within this direction and field, applying a system of technologies and strategies based on an understanding of the inner working of ecosystems (living systems) to give "form" to processes that can generate new and healthier patterns in a place. (Lyle, 1984)

Place. Place is defined here as the unique, multi-layered network of living systems within a geographic region that results from the complex interactions, through time, of the natural ecology (climate, mineral and other deposits, soil, vegetation, water and wildlife, etc.) and culture (distinctive customs, expressions of values, economic activities, forms of association, ideas for education, traditions, etc.).

The regenerative paradigm asserts that development can and should contribute to the capacity of all of the natural, cultural, and economic systems that it affects in a place (to grow and evolve their health and ongoing viability). This is what Sanford calls the "quintessential top line" versus the triple bottom line. (Sanford, 2011) The basis for this assertion lies in the power of the vital, co-creative relationship between humans and the places they inhabit. Many scholars of place argue that it is only in relationship to place that humans experience the intimacy and responsibility to the living world and find a meaningful identity and role for themselves (Relph, 1976; Sack, 1977; Casey, 1996; Malpas, 1999, Berry, 1981; Cameron, 2002; Cresswell, 2004).[vi]

The regenerative paradigm returns place to its core position in human life, making it an integral part of the development and design process. As a coalescing context, it serves as the basis for illuminating what has shared meaning for all human and natural stakeholders, bigger than any one issue or cause, and thereby for discovering how a project can become truly meaningful. It is an organizing core in that understanding how a living place works becomes the touchstone for organizing how the project needs to work as a living system nested in its place to achieve the connectedness required for increasing mutuality of relationship.

Pattern literacy—understanding and generating patterns

Complexity science, which emerged toward the end of the last century, is the study of the systems that populate the ecological world—variously called complex, complex adaptive and living systems. In a complex or living system the "whole is much more than the sum of its parts… No amount of information at the level of the individual component can reveal the

organizational pattern of the system." (Amarala, 2004, p. 148) The core focus of complexity science thus is not on parts, but rather on understanding *patterns of relationships* between parts as clues to understanding how these systems are sustained, how they self-organize and how emergent outcomes are produced. And, living systems theory would add, as clues to their evolutionary potential (Von Bertalanffy, 1968, Capra, 1996.

The problem arises when a complex system is treated as a complicated system, which has been the case with both conventional and green building site assessments and designs. When seeing sites and their surrounding area as *complicated* systems, the tendency to rely on quantitative measurements of the component parts (soil, water, etc.) simply expands what's being measured to meet new sustainability standards. The resultant proliferation of data is not only unmanageable, it fails to provide understanding of the living qualities of a site and its place. Ironically, this can result in a failure to protect what was initially intended.[vii]

The caring about a mutuality of relationship that comes from deepening connection with a living place is essential to launching and sustaining a regenerative process. But caring about any living entity without understanding how it works can lead (and has led) to well intentioned but ultimately damaging interventions. What then is the role of data and metrics in this fluid, dynamic, relationship-dominated world? How does one develop (and sustain) sufficient understanding of one's living place—an equally fluid, dynamic and multi-leveled entity, to create an intimacy of relationship between that place and a project? The concept of pattern literacy offers a solution.

As the language of relationship, pattern has been utilized from the earliest history of humans seeking to engage intelligently with their world. As complex, dynamic relationships, patterns and the organizing core of a place cannot be measured, weighed and quantified in the way structures or isolated flows can. They cannot be discerned with a snapshot in time, or even a series of snapshots through time. Marvick and Murphy (1998) describe the mental process required as continual iterations of "scanning and honing" in which objects or data become background unless they emerge as pattern clues in the form of nodes, anomalies, paradoxes and attractors. They provide a sophisticated and detailed description of how reading or understanding patterns reveals the underlying energy flows, both actual and potential, shaping a system. A pattern can reveal the directionality and strength of flows (wind, water, foot traffic, etc.), the nature of the medium the flows pass through and around, as well as how form emerges. (*ibid*, Michael & Meacham, 1998). Using pattern literacy to "read" the landscape thus provides the relational understanding required to design a built environment that harmonizes with and contributes to these flows.

It is not surprising that permaculture, an ecological design system, was ahead of its time in recognizing the need to bring a pattern-based approach not only to understanding the metabolism of a place, but also to creating human systems whose metabolic patterns resonate with and amplify the metabolic patterns of their place:

> "The core insight of permaculture is the idea that we can shift from dominance to intimacy with nature through mutually beneficial interaction with the entity of place. This depends on knowing 'place' on the level of relationship. Patterns are significant because they reveal

relationship dynamics and what is at the core of how a place organizes and orders itself." (Marvick & Murphy, 1998, p. 24)

Story of Place

Stories enable individuals and groups to grasp and share complex wholes and collectively imagine the future differently. They have been used throughout human history to maintain a culture's integrity and connection to place over millennia (song lines, epic poems, myths, etc.). Research shows that the human memory is story based, not data based, and that stories are fundamental to how people learn and organize what they know. (Schank, 1995). More recently, Berry, Korten and Denning among others have explored the role of stories as powerful agents of change. (Berry, 1981; Korten, 2006; Denning, 2000 & 2004) Through creating "story fields," they "permeate psycho-social space and influence the lives of those connected to them." (Atlee, 2003, para. 9). Both aspects were developed and are employed in Regenesis' development and use of Story of Place as a method for deepening connection to and growing harmony with place.

A story is a coherent organization of information, and of the relationships and connections between discrete pieces of information and different types of information. An underlying narrative structure enables relating this information and these relationships and connections in a way that reveals a holistic, understandable picture.

The Story of Place as a context serves multiple purposes. First, history has shown that a society will not sustain the will needed to make and maintain the needed changes, day after day, without evoking the spirit of caring that comes from a deep connection to place. Second, discovering the story of a place enables us to understand how living systems work in that place, and provides greater intelligence about how humans can then align themselves with that way of working to the benefit of all. Finally, the Story of Place provides a framework for an ongoing learning process that enables humans to co-evolve with their environment.

Stories have the power to deepen connection to the underlying intrinsic beauty and value that a place has to offer. In addition, stories can create collective identity, meaning and purpose to bridge divides and foster collaboration (Relph, 1976; Prechtel, 2004; Cameron, 2002; Forbes, 2006; Mang 2009). [viii]

One of the challenges for regenerative development is how to extend a regenerative process beyond the design or even construction phase of a project. The exploration of story as a change agent, and the concept of "story fields" offers some promising insights into how this can work. If the dialogue initiated around the project produces a "storying" process that people experience as authentic in action as well as word, it can move out from the project into and across the community, sourcing what Atlee (2009) calls a new "story field." In this sense, a project has an acupuncture effect that ripples out far beyond its direct impact.

Potential

Potential is defined in dictionaries as "the inherent capacity for coming into being, for growth and development." From living systems theory, all living systems are distinguished by a unique

essence, and all have, based on that uniqueness, an inherent potential which they are moving toward or away from, depending on their state of integrity and vitality or health.

Living systems are both comprised of smaller systems nested within them and are also nested within larger systems, and there is a mutuality of interest between and among the different levels based on the energies that are exchanged up and down the different scales. (Capra, 1996 Sanford, 2011) For example, a home is nested within a neighborhood, which is nested within a community, which in turn is nested within a watershed. Recognizing all of these levels as living systems enables seeing their mutuality of interest, something that is less evident when they are segregated into categories of the natural and built environments.

From a regenerative sustainability paradigm perspective, development always looks for potential in relation to the larger systems in which an entity is nested, i.e. what an entity has the potential to be or become that will contribute to their vitality and viability.[ix] A regenerative design works to develop patterns of relationship between the entity and the larger system that generate a cascade of capacity development up and down system scales.

Regenerative Methodology Tiers 2 & 3: Technologies, System of Methods and Tools

Technologies

The Regenesis Group posited that a regenerative approach was possible only if it included technologies (i.e. methodologies with a scientific basis) for the following three dimensions:

- Theoretical systemic frameworks that enable comprehending and envisioning complex living systems, and the ecosystem of place in particular, as dynamic wholes evolving and changing through time
- An ecologically based design system for practical and innovative place-specific insights and on-the-ground solutions;
- A systemic process for engaging the people who will need to sustain and develop the process over time

Regenesis fused three distinct though complementary approaches—living systems thinking, permaculture, and developmental change processes—as their basis for developing and evolving a regenerative methodology.

Living Systems Thinking

The shift to an ecological worldview demands a new way of thinking that can comprehend a world comprised of systems versus building blocks. Living Systems Thinking was originally developed by Charles Krone to enable thinking about organizations as living systems—what organizes and orders them, how they are structured, how they evolve, etc. It uses systemic frameworks and developmental processes to consciously improve the capacity to apply systems thinking to the evolution of human or social and natural living systems. This approach requires that the person applying this way of thinking see what they are working on as a system of

energies or life processes, rather than as things (or even as a system of things). It begins by trying to see what is at the core of a system, around which the system organizes and orders itself. It looks at the web or larger context of reciprocal relationships within which it is embedded, since all systems are comprised of smaller systems and are part of larger systems. Together these aspects provide the basis for illuminating the potential inherent in a living system that it is attempting to manifest. This constant reaching toward being more whole, being more "alive," is seen as the fuel for regeneration.

Permaculture

Permaculture is a design system that develops and applies the ability to discern the patterns that are structuring both natural and human systems, and to generate new patterns that weave the human and natural together into a dynamic whole. This patterning skill enables the assessment and articulation of the distinctive character or essence of a place, which is then reflected in a wide array of optimizing design solutions and management techniques that have the effect of beneficially linking elements that are often treated as discrete (e.g. road systems that serve as water harvesting structures and erosion control features while supporting windbreak, wildlife habitat, and firebreak functions).

Developmental Change Processes

Finally, drawing on their members' background as educators and change agents, Regenesis evolved an approach to place assessment and project design that engages communities and design teams in a dialogue to evolve higher and higher orders of aspiration and understanding. This approach uses the power of storytelling, and the creation of a "story field" that shifts the focus to seeing the whole system and what it is attempting to become instead of focusing on problem solving and conflict resolution. In other words, stakeholders see themselves as having a stake in the potential that needs to be evolved, rather than in a struggle over what exists.

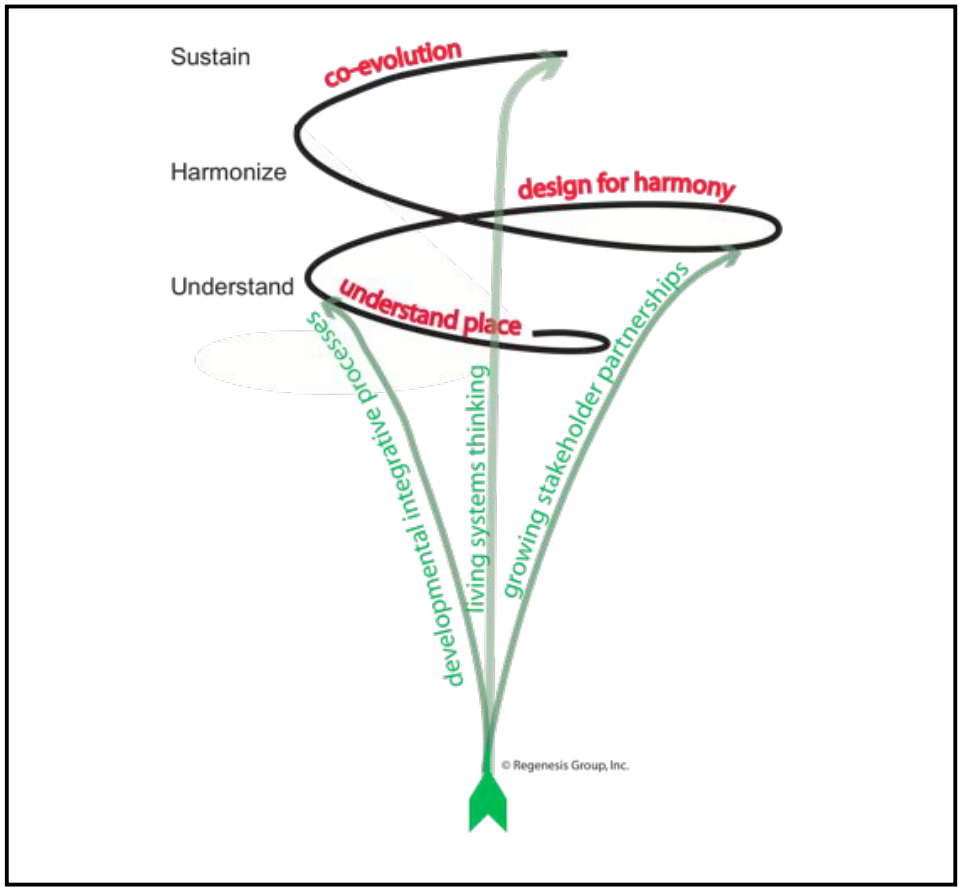
The approach utilizes developmental processes that always integrate two types of work: (i) actualizing work that is creating or making something actual, and (ii) potentializing work that is building capacity. In other terms, even as the process works to actualize a new system, everyone engaged is also working on self-actualization. This nature of process opens the door to creative collaboration and mutual respect across disciplines, between laypersons and professionals, and even among historically antagonistic constituencies. In the case of development and design, this approach requires a truly open process on the part of the development team, one in which the vision and planning for a development is emergent—growing out of the emerging understanding of a place that comes from this ongoing community dialogue.

System of Processes: A Framework

Figure 4 depicts the three phases: Understanding/Conceptualizing Right Relationship to Place, Designing for Harmony, and Co-Evolution, that emerged as essential to this methodology, and the three developmental processes: Growing Stakeholder Partnerships, Living Systems Thinking, and Integrative Developmental Processes, that are key to creating and sustaining the holism required to make this an evolutionary spiral, growing systemic capacity as it actualizes a

project. The following sections give an overview of how each phase unfolds, and how the three process drivers play out, including some examples of activities, the theoretical bases they draw from, and the mentation involved. Each phase of the process is designed to develop and extend appreciation of and caring about all of the enfolded, interdependent dimensions that create a place and the meaning it holds for its inhabitants. This deepening of connection to place is seen as a vital source for the continuity of caring essential to extending the regenerative process beyond the initial project. Note: the phases overlap and are cyclical. Examples of some of the methods and techniques developed as a part of this methodology (Tier 3) are included in the phases rather than listed separately.

Figure 4

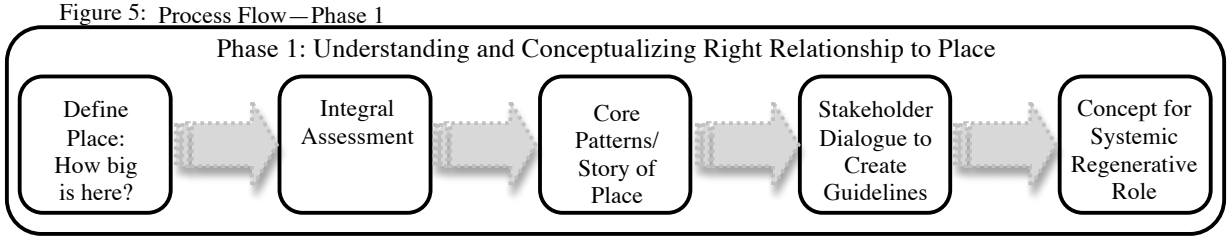


Phase 1: Understanding and Conceptualizing Right Relationship to Place

Regenerative development begins with the recognition that each place is a dynamic entity with its own unique history and future—growing and evolving, forming and decomposing, continuously influenced by the larger system in which it is embedded.

The purpose of this phase is to *understand* the unique dynamics and potential of a site, project and community in relationship to their living place, and to *conceptualize* how, through right relationship[x], the project can be a regenerative force. The usual flow of the process is depicted in Figure 5.

Figure 5: Process Flow—Phase 1



Defining Place

The context chosen for conducting research and assessments shapes what is seen as meaningful, how meaning is shared and through that, how phenomena are understood. Thus the first task of the assessment is to determine the reach of a place as the context for the work to follow. In simple terms, this task starts by asking the question, "How big is here?" It is not always immediately apparent, for as Kelly notes: "Wherever you live, your tiny spot is deeply intertwined within a larger place, embedded fractal-like into a whole system called a watershed, which is itself integrated with other watersheds into a tightly interdependent biome. At the ultimate level, your home is a cell in an organism called a planet. All these levels interconnect." (Kelly, 2005, para. 1)

Integral Assessment: Emerging Core Patterns and Story of Place

Seeing the complexity that surrounds a site can be overwhelming if there is not a way to understand it in relationship to individual and collective efforts. Another essential step in regenerative development is thus being able to discern the core of a given place. The core is what organizes all of the dynamics that comprise a place, giving it a recognizable character and nature. Key to comprehending place as a living system or whole is understanding the ongoing and distinctive core patterns from which it organizes the complex arrays of relationships that produce its activities, its growth, and its evolution. These core patterns form the framework for the Story of Place.

The emergence of a story begins with an Integral Assessment— a whole systems (cultural, economic, geographic, climatic, and ecological) assessment of site and place as living systems, to help project and community stakeholders understand the whole of their place as a means of making sense of the overwhelming diversity of its parts. It lays the foundational understanding and thinking required to see how humans can enable the health and continuing evolution of the place and themselves as a part of it.

The assessment integrates information from a wide range of sources and disciplines, including site visits, existing data, reports and maps, and interviews. It seeks patterns that are present both historically and currently across natural, social and economic sectors.

The narrative structure or framework for Story of Place emerges through developing a pattern understanding of how the geological, natural, and human history and culture have interwoven through time to create the unique nature of a place. Out of that understanding a set of core organizing patterns emerges that provides a science-based narrative framework.

Pattern understanding is key to this process. As mentioned above, this allows for understanding the complex, dynamic relationships that constitute a place. The resulting story framework has two dimensions: (i) the core organizing patterns depicting the working of a place which reflect its unique character or essence, and (ii) the "vocation" of the place—what it uniquely has the potential to contribute to the larger system in which it forms a part.

Stakeholder Dialogue/Guideline Development

At the end of the first phase of the assessment process, the assessment team relates the stories they saw and heard that illustrate the emerging story framework, and invite local participants to test the initial candidate against their own experience of place, sharing stories that resonate with and/or refine the story framework. Out of the reflective dialogue with the design team and community stakeholders shared meaning emerges around "who" that place is as a living whole—its unique essence and potential, how it fits in the world, and what the role of those who inhabit it can be as collaborators in its evolution. A first set of place-sourced guidelines, principles and concepts for the design and the design and construction process are developed while the story field is still alive in the group. The dialogue continues to unfold through and beyond the design process by a sharing of stories that reflect both local experiences and the perspectives of different specialists. These stories are transparently rooted in a shared understanding of place. As a consequence, they can serve to increase confidence in the integrity of the project and its aspirations, and provide a basis for reconciling differences.

One of the things that emerges from the assessment and the engagement around Story of Place is an appreciation both of nature's role and of the co-creative interplay between nature and culture. Stepping back from the individual parts opens up a new level of appreciation, learning and potential from seeing nature as master developer, continuously developing a site in harmony with its unique character to create optimum conditions for generating and sustaining life.

From Understanding to Concept: Seeing Systemic Regenerative Roles

Every project begins with some activating idea of what it seeks to create and why. Revisiting that idea within the systemic context of a living place almost always reveals much greater potential than had been initially seen, evolving the aspirations for the project and providing the basis for conceiving the regenerative role it could play.

When a project is grounded in a rich patterned understanding of its place, and its design and construction is guided by a concept that envisions its role and potential within that place, it enables formerly fragmented problems to be addressed as part of a whole system in the overarching context of that potential. One result: even small interventions can ripple out into large systemic benefits.[xi]

The mental process used for evolving a regenerative concept has three steps. In addition to conventional methods of evaluation, these steps require the subjective engagement in questions of meaning and purpose by all those who will be involved in a project — designers, developers, builders, community stakeholders, and end users:

1. **Envisioning** higher order potential. This is based on understanding the place in terms of its core nature and ask: "What could this place really be like if it lived up to its full potential and vocation—what are its "aspirations and what is it called to contribute?"
2. **Appreciating** project aims and aspirations. Understanding the site's potential becomes a foundation for fresh thinking about the project itself: "What is the purpose of this project as now defined—i.e., who and what is it serving and how? What is the meaning of accomplishing that? Why is that significant in this place?"
3. **Translating** project aspirations and site understanding into a project concept. Key questions are: "What does this place require of us? How could this project help it get there? How can we redefine our purpose for this project in a way that clearly shows the connection between doing good and doing well? Can we imagine the project in such a way that its success is tied directly to the success of our efforts to regenerate the surrounding natural systems and communities—i.e., the better those systems do, the more economically successful we are?"

The process starts by creating and maintaining a state of cognitive dissonance or dynamic tension by holding in the collective "mind" of the team the two forces that need to be harmonized—the larger potential of the place and the purpose of the project - while continuing to deepen

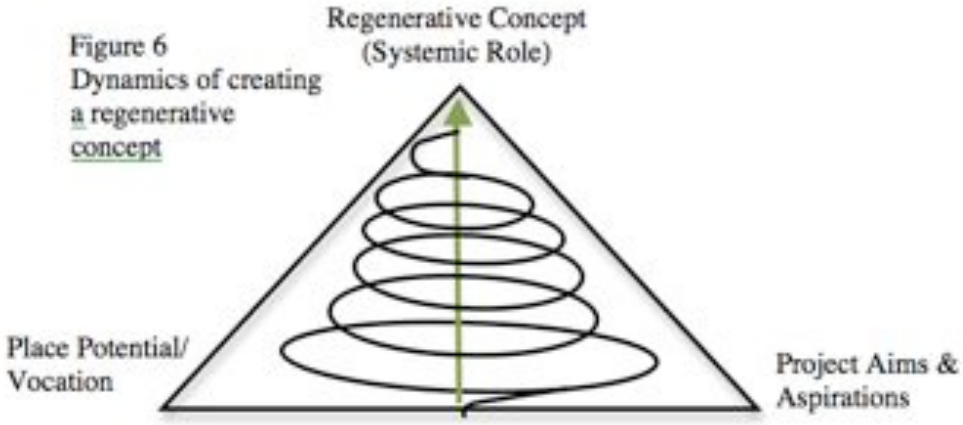


Figure 6
Dynamics of creating a regenerative concept

understanding and appreciation of both as separate entities until a reconciling concept emerges that can serve and elevate both. Failure to discipline the mind to hold and appreciate the value and meaning of both place and project long enough usually results in a compromise that serves both partially, but fails to advance the whole.

Phase 2: Designing for Harmony with Place

Where the preceding phase illuminates the larger patterning that enables a place's fullest realization, and a project's potential role within it, this phase defines the distinctive patterns that need to be generated in and by a project in order to harmonize with that larger pattern.

Designing for pattern harmony optimizes the presence of people in a landscape, weaving what is built into the living fabric of the land and local community. Pattern harmony means buildings and infrastructure improve land and ecosystems, and the unique attributes of the land improve the built environment and those who inhabit it. Synergy with the land and ecosystems leverages the effectiveness of green design features and technologies, and lowers costs while improving ecosystem health and productivity.

The three elements in Figure 6 depicting the dynamics involved in developing a project concept, together with the design guidelines generated in the previous phase, serve as the touchstone for this phase. By maintaining cognizance of them through increasingly detailed iterations of the design and construction processes, they provide a source of creativity and alignment. This presents a significant challenge given the complexity of development and the requirement for broad stakeholder engagement in regenerative processes. One means for managing it is the use of a core team. A core team's "responsibility is not in day-to-day activities but to remember, hold, and promote the core aim and higher aspirations of the project – to hold the core which energizes the design process and on-going resiliency of the Place." (Reed, 2009, p. 679). Its membership reflects all the core constituencies whose involvement is required to successfully complete the project.

A second requirement is the attention to site as a living system in order to "build to place, not formula." Infrastructure, whether conventional or green, is still usually a product of engineering formulas that are adapted to specific site conditions. However, in starting with formulas, creative opportunities can be missed, particularly the use of natural infrastructure. Harmonizing with nature requires "close attention to the uniqueness of a site, using the particularities of a given place as parameters for determining the kind of engineering and design solutions that are appropriate and possible in that place." (Haggard, 2003, p. 26) Permaculture design principles offer an alternative to formulas in this methodology, in that they provide a lens for seeing the systemic relationships of the unique dynamics of a site, and interpreting their implications for specific aspects of the project.

Phase 3: Co-evolution

Regenerative development and design does not end with the delivery of the final drawings and approvals, or even with construction of a project. The responsibility of a regenerative designer includes putting in place, during the design and development process, what is required to ensure that the ongoing regenerative capacity of the project, and the people who inhabit and manage it, is sustained through time.

Ultimately, every regenerative project seeks to catalyze a process of "co-evolving mutualism"—the increasing and mutually beneficial integration of human and natural systems that supports their co-evolution. The implication is that harmony is not some steady state, but rather a process of *progressive harmonization* of dynamic systems, one that cannot be predicted but can be

continually planned and managed toward. "What is sustainable today may not be so ten years from now. To stay "alive" a system needs to maintain its adaptive capacity, and its capacity to create new and unpredictable things." (Parzen *et al,* 1996, p. 27).

It is in Phase 3 that the real potential of a project's systemic relationship to its place can be realized. This phase unfolds from the work of the previous two phases. If they have succeeded in creating a culture of co-evolution in and around the project, and not just a physical product, its effect can be seen even before final construction.

Developmental Process Drivers

In nature regeneration is cyclical and ongoing, though not continuous, and it ends only when a living system ceases to evolve and eventually disappears. The same applies to human living systems. When taken together, the three phases outlined above can create an iterative cycle opening up potentially endless opportunities. Like the definition of the word development, regenerative development is a process, not an event; an unfolding, revealing latent possibilities, progressing from the simpler to more advanced, mature, or complex. "Success" in regenerative development is iterative and progressive, with each cycle moving upward. It follows a pattern that is inherent in life, but far from inevitable at the individual project level. The revelation of "latent possibilities" can be both exhilarating and enormously intimidating. The experience of destabilization that comes from seeing a new level of potential and what will be required to realize it is inherent to any human developmental process. Making progress will require new knowledge and skills certainly but, much more importantly, it will require a new mind and a new way of being, and that in turn will require integrating inner developmental processes with the outer development work. The three process drivers are: growing stakeholders, whole and living systems thinking, and integrative developmental managing processes. These three drivers work together to create and sustain the consciousness and commitment required to realize the potential of the three phases.

Growing Stakeholders

> "To sustain the ongoing enrichment of potential that is the hallmark of regenerative development, projects must act as a continually unfolding source of inspiration and spirit for all of the stakeholder constituencies that are affected by them. They must enable all of us to perceive and pursue new orders of potential—in ourselves, our families and communities, and in our work."
>
> (Haggard, 2002, p. 31)

Three factors differentiating this regenerative methodology's approach to stakeholder engagement include the definition of identity, role and what's at stake.

Discovering shared identity: One of the most powerful effects of the regenerative development process is that, in "rediscovering" their place through the Story of Place process, people rediscover what they care about and share in common. The resultant sense of shared identity transcends artificial boundaries and is an important force in creating the caring and connection

necessary to make the changes required for a sustainable future for both project and place. “By starting a development with a learning process about how one’s land works as a living system, we lay the basis for reawakening the connection people experience between themselves and the place they inhabit.” (Haggard, 2002, p. 29)

Redefining what’s at stake: Ordinarily, stakeholders are defined as those who will be affected (positively or negatively) by a project. In this methodology, stakeholders are defined as those who would have a stake in *what could be*—the enlarged potential that a regenerative project brings to a community and its biosphere. This shift in emphasis allows a dialogue with key groups that are focused on shared vision and shared opportunity, rather than on the turf battles and defensiveness that so often characterize current debates over development. It builds long-term support for the larger aspirations of a project, and regenerates the spirit of stakeholders as a result of seeing the meaning and significance of what they uniquely bring or can bring to growing the health of their place.

Successful regenerative development ultimately requires all the stakeholders in a place, not just the development/design team to move from the role of “builder” to “partner-gardener.” Engaging stakeholders in the work of Phase 1 enables them to see the places they inhabit as alive, and to see the role they can play in creating the conditions for its health and generativity, the first step toward the role of partner-gardener.

Whole and Living Systems Thinking

Both ecoliteracy and pattern literacy, key components of whole systems thinking, are critical to growing stakeholders and designing and constructing projects that can work as “place gardeners.”

In addition to being place-specific, regenerative processes are evolutionary, going beyond improving current systemic performance (what is often called restorative) to embedding into the system the capacity to continue to improve its own performance through time and through varying environmental conditions. Implementing these processes therefore involves a much greater degree of systemic complexity and dynamism, one that encompasses multiple scales or levels of nested systems, and requires an ecosystem and place-based perspective, multidisciplinary teams and extensive local stakeholder participation (Marcotullio and Boyle, 2003; Pickett and Cadenasso, 2002; Pickett and Grove, 2009). As a consequence, regenerative work requires a level of systems thinking capable of comprehending as well as ordering and organizing this complexity. Additionally, it requires methodologies for developing systems thinking that enable a diversity of participants to grow their own systems thinking capacity to enable taking on more challenging, value-adding roles.

There are several methodologies that assist with developing systemic thinking, but few are designed to be implemented as an integral part of work, which, given the exigencies of a development project, is an essential criteria. Living Systems Thinking[xii] is a means for consciously improving the capacity to apply systems thinking in a way that responds to the uniqueness of a given place—enabling design teams and local stakeholders to come to each project with a fresh mind, and to avoid the automatic, conventional or 'template' approaches that

are antithetical to regeneration. This technology uses systemic frameworks to shift the focus of attention from simply solving current problems to working to realize the upper limits of creative potential a healthy system is capable of manifesting. Systemic frameworks provide, so to speak, a common language that enables design teams and lay people to think creatively together.

Integrative and Developmental Managing Processes

The process of regenerative development both generates and demands creativity and deep engagement by all involved. One implication is that a successful regenerative process requires managing for integration and harmonization across disciplines and phases and between and among team members and local stakeholders from a wide range of disciplines and constituencies. Another implication is that managing processes, in addition to integrating and harmonizing activities, also need to be designed to embed developmental processes into the "day to day" work of the project in order to support the transformation of thinking necessary for communities to make any real and lasting changes to the way they relate to their living environment. Inviting and assisting people to think outside of the paradigms they are accustomed to can be challenging, but without it old habits and patterns will inevitably reassert themselves.

Capabilities that such developmental processes and systems work on developing include:

- Ability to develop and utilize systemic frameworks that enable the mind to see and understand what lies behind and is sourcing the visible phenomena picked up by the senses.
- Ability to see, and understand the implications of the patterns and dynamic flows of resources and energies that have shaped and are shaping a living system—whether a natural or a social system, without being overwhelmed by details and data.
- Ability to manage one's own state in order to maintain the clarity and breadth of mind and mental discipline required to think systemically all the way through a process.

Conclusions

The ecological worldview roots of regenerative development and design are evident in very different ways of thinking, seeing and engaging with the world than those that have dominated green building and eco-efficiency approaches to sustainability. Regenerative thinking redefines the built environment—from the old, building-centric definition to one that includes the relationships between and among buildings, infrastructure, and natural systems, as well as the culture, economy and politics of communities. It redefines what sustainability means and requires within the context of a dynamic, interdependent, evolving world. It sets goals accordingly based on the perceived need to re-weave human and natural communities into a co-evolutionary whole, where humans exist in symbiotic relationship with the living lands they inhabit. To that end, it envisions development and design as the means for forming sophisticated, mutually beneficial partnerships between humans and their constructed environment, and the natural systems of their place.

An actual regenerative methodology, based on experience from years of practice, was presented as an example of how the ecological worldview and regenerative thinking are changing the definition of design and the role of designer, expanding the list of essential design competencies

and design issues, and blurring formerly rigid divisions between and among disciplines. The methodology brings together professionals and community members in a co-creative process in which designs emerge from a deepening understanding of and connection to place. Recognizing that regeneration is an unfolding process and what is sustainable changes through time, the design process works to grow the ongoing regenerative capacity of the people who will inhabit and manage a project. The process offers the potential for a new level of community engagement in which citizens move from passive consumers of expert-designed sustainable products to actively "owning" responsibility for their continuing sustainability as well as that of their community and their place.

A number of challenges still face widespread adoption of regenerative development and design, including fragmented institutional structures of governance and ownership; the challenge of qualitative and long-term measurability; and economic pressures for scalability and replicability of local solutions. The progress of green building has shown that such external restraints can be addressed. The more daunting challenges are likely to come from internal restraints that emerge from the need to integrate at the level of one's practice the transition from green building's mechanistic worldview to the ecological worldview of regenerative development and design.

The transformative changes in the process and role of design required to work regeneratively begin with a transformation in how one sees and interprets the world one is designing into and for. The methodology framework used to structure the exploration of the regenerative methodology in this paper makes explicit the underlying premises (based on the worldview system of beliefs) that shape one's choice of strategies and methods. It can be applied in diverse situations and projects by designers seeking to develop a new pattern of thinking in order to evolve toward a regenerative practice. Whether using this or other frameworks, a critical capacity for practitioners seeking to work regeneratively will be consciousness of *how* they think, not just *what* they think about and what they *do*.

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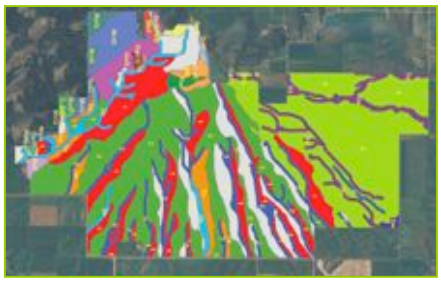
Appendix

Pattern of Place. As an example, in Mahogany Ridge, Idaho local environmental groups were fighting to prevent development on 3500 acres of abandoned or failing farmland used by migratory birds as a stopover. The site was located on an alluvial fan at the base of the mountains. An Integral Assessment revealed that one of the core patterns of this alluvial fan that was that of a "living bridge" supporting multiple nutrient and wildlife flows and exchanges between the mountains to the west and the Teton River to the east. It further revealed that the row-crop agriculture on the alluvial fan, by severely disrupting this core pattern, had nearly destroyed the original ecological abundance of all three distinct ecological systems—the mountain, alluvial fan, and river system. Preservation of the existing farmland would continue the degenerative cycle, which opened up the question—what nature of development would serve as a regenerative force.



Looked at closely, the photo on the left reveals that farming was superimposed on top of this alluvial fan between the stream in the mountain valley (top center of the photograph) and the river. The soils mapping indicated in the photo on the right reveals the pattern more clearly.

For the Mahogany Ridge project, out of the understanding of the core place pattern emerged a new project concept—to use the development of the land to rebuild the living bridge by regenerating severely simplified and destabilized ecosystems. Principles, goals and opportunities addressing community planning, material flows, energy, community, buildings, wildlife and a place-sourced economy were developed from the Integral Assessment and Story of Place as guides for the design, construction and ongoing engagement of homeowners and neighboring community residents. These were key in shaping the revised masterplan which called for the development of homes in tight clusters, producing additional revenue that would pay for the restoration of the stream and habitat corridors that originally connected the Teton River and the mountains while providing wildlife corridors as well as many ecosystem services for community residents.

Even at a full build-out of 1,000 homes, a highly unlikely outcome, water use would be reduced from 90% of the water coming off the mountain to 10%. Integration of the local community and project residents into the development and management of these systems, would enable production of food (through diversified agriculture and wild harvesting), timber, and other products, as well as the development of a diversified economy while insuring the provision of

ecosystem services for the community. A Community Stewardship Organization and active HOA education and action programs would engage the homeowners in developing, managing and re-designing the reconnection of these nutrient and wildlife flows through time, becoming sources for the ongoing regeneration and development of potential of the site. (Biohabitats et al, 2008)

An Application of the Methodology. The assertion that the success of a regenerative project requires creating a "culture of co-evolution" is probably one of the most challenging aspects of this regenerative methodology. The experience of creating Playa Viva, an eco-resort on the Pacific Coast of Mexico, provides an example of how the work in the first two phases can create such a culture.

from the Playa Viva Website www.playaviva.com

While Playa Viva's owners started with a commitment to sustainability, their definition of sustainable development was confined within the worldview of new urbanism and green building. Upon learning about the power of regenerative approaches, they decided to adopt regenerative development as the overarching framework for the project. "This (regenerative development) process," they later noted, "made us consider and stay committed to the legacy of our work."

Site drawing by Ayrie Cunliffe

Recognizing that their "legacy" depended on growing the regenerative capacity of both the natural and human communities of their place, they set a long-term goal to "revitalize and nurture local natural resources and the community, so they thrive in harmony and continually improve." "Our goal," their current website states, "is to be regenerative, not just to make less damage (building green) or net neutral (sustainable) but to make a significant impact in creating a better local economy, more resilient and thriving ecosystems and still have a profitable business endeavor. We also feel that to be truly sustainable, these values need to be core to your people and organization. Sustainability just can't be a department you add because that is part of your marketing message. Sustainability needs to be the way everyone involved in the project thinks and acts; it needs to be core to our DNA! We start with these values, now the challenge is to lead, to transfer and to inculcate these into the whole community that is Playa Viva (and beyond)." (note: quotations, unless otherwise stated, are from the Playa Viva website, www.playaviva.com)

Starting with the first steps of assessment and concept development, the Playa Viva team explored how the living systems of the land and people had worked in harmony in the past, looking for possible interventions that could restore that harmony and the place's socio-ecological capacity to sustain it. They engaged members of the local community to understand their aspirations, challenges and what was meaningful about their place. Their findings, together with the owners' goals, created a whole-systems understanding that became the touchstone for creating an integrated, holistic strategy that included every aspect of design, construction, operations and marketing. Each decision was weighed against this systemic understanding for its effect on growing the regenerative capacity of the built environment, project staff, the resort as a business, the local community and the local ecosystems.

The team looked for potential-rich transformative nodes, points in the socio-ecological web of the place where multiple ecological, social and economic flows intersected and where small interventions could deliver maximum systemic benefit. They asked questions such as: How could the resort construction and operations, while creating a showcase of world-class sustainability and natural beauty, be instruments for building local skills in new sustainability technologies and revitalize traditional wisdom and healthy land practices? How could resort

operations use the delivery of market-differentiating, distinctive-to-place amenities to stimulate eco-friendly small businesses as part of growing a resilient local living economy? How could marketing and public relations grow business for the resort while helping attract financial, intellectual, market and social capital to support the local entrepreneurship and community development? How could resort activities offer guests opportunities for transformative experiences while leveraging the flow of resources from sustainable tourism to support ecosystem and economic regeneration programs?

The Master Plan for Playa Viva calls for a phased build out of up to 35 Casitas, 23 lots for homes, a town square and boutique hotel with up to 60 rooms plus additional infrastructure for energy, water, activities and operations. After completing Phase One in late 2009, it was decided to delay the rest of the build out to ensure that ongoing development of the local infrastructure, ecosystem, economy and workforce capacity stayed in balance with the growing impact and needs of the resort community. A range of community and ecological revitalization programs are now underway, with others still unfolding, some as a result of guest input and sponsorship.

In terms of the built environment, Phase One was designed to move toward the commitment to create more energy than used, cleaner water, healthier soils and increased biodiversity. Buildings are constructed with the best available green technology, including 100% off-grid solar energy, and use natural and local building materials throughout. Rooms are oriented for natural cooling, and designed to feel like an extension of the natural surroundings, deepening the sense of connection to the living place. The permaculture-designed landscaping balances native, drought-tolerant and aesthetic/food-bearing species, attracting birds and beneficial insects. Water management is robust, and includes biological treatment systems for both grey and blackwater, removal of pollutants, water reuse for landscaping and extraction of nutrients to enrich the soils. Using the design and educational materials to make explicit and transparent the connection between low water use and lack of pollutants and healthy local wetlands, waterways and humans, guests as well as local contractors and maintenance workers become committed to the use of biodegradable cleaning and hygiene products as an opportunity to contribute to improving the abundance and well-being of both the natural systems and community, rather than as an imposed burden.

A number of ecological regeneration initiatives are underway, including the establishment of the Playa Viva Reserve which is working to restore 80% the resort's 200 acres to coastal forests and wetlands, bringing back mangroves, beautiful hardwood trees and a variety of indigenous flora and fauna. An on-site turtle sanctuary works to preserve Mexico's endangered green sea turtle population. Set up by fisherman and farmers who "recognized the damage being done to the local turtle population and decided to make a difference," it is run by an all-volunteer staff from the local community.

Recognizing that gains made for biodiversity and ecosystem restoration can be quickly undermined without the support of the community, Playa Viva has several active programs that support community building and eco-friendly economic development. A minimum of fifty percent of the construction crews were local, and were provided training in sustainable and permaculture techniques, with workshops still being offered. Rooms feature furniture built by local artisans from native and locally harvested woods. The head permaculturist noted that "After helping to build the organic gardens, we noticed people 'taking home' the principles of poly-cultivation, soil

regeneration, organic pest control and use of plants for medicine. This is information that can expand along the region and leave a social legacy." (Beadle, 2010, para. 24)

To reinforce that legacy, the resort began offering local farmers organic agriculture courses, thus helping clean up the watershed, improving human health, and expanding the supply of organic food for the resort as it grows. The resort is also working to expand the organic food market, helping the farmers set up Canasta Viva, a community supported agriculture cooperative that delivers baskets of organic produce to local homes, B&B's and hotels in the region. A recycling program raises money, keeps trash out of the river and reduces burning. Many townspeople have already started small businesses in support of the development, including a nursery providing plants and trees for the restoration and regeneration of the preserve, and are increasing their profitability and business viability through economic assistance such as business training and broader access to resources and markets. As a part of Playa Viva's general public relations and marketing strategy, they have developed a brand of organically produced artisanal salt, Sal Viva, and are working with top chefs in the U.S. with the ultimate goal of increasing the price obtained for the members of the salt coop who continue to use traditional means vs. plastic in harvesting the salt.

The commitment to regeneration is also evidenced in guest experiences designed to create "opportunities for transformative experiences" (Beadle, para. 26) such as helping palm-sized baby turtles make it from nest to the ocean in the sea turtle sanctuary. Guests are invited to join in the activities that engage and support the local community and ecosystem, or to identify new activities and create their own programs. By visiting Playa Viva, guests are told "you are making a conscious commitment to the regeneration of a happy and healthful eco-social, living system."

The Playa Viva team are quick to say that they are still on a learning journey and mistakes have been made but, most importantly, the learning harvested from them becomes another source of creativity and renewed spirit.

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Endnotes

Endnotes

[i] For purposes of brevity, this article employs du Plessis' (2009) term "worldview complex" to denote the combined influence of a worldview and paradigm.

[ii] As Dumanoski (1999) notes, at this hinge point in history, "we will have to reinvent ourselves and our global civilization". The transition is already under way, influencing a wide range of fields from international security (Ramo, 2009) to business (Sanford, 2011), to health (Forget & Lebel, 2001). With regard to the built environment, terms like "living" (e.g. living building, living machine), "ecological" and "regenerative" are being applied with increasing frequency if not always consistency (Nugent *et al*, 2011, Edwards, 2010, Beatley & Manning, 1997, Newman & Jennings, 2008).

[iii] The practice was developed by the Regenesis Group, which began articulating theoretical and practical foundations for regenerative development in the mid 1990s. It provides a useful lens for understanding how a practice can emerge from and be shaped by a worldview complex in that their body of work includes both theory and praxis, and its continuing development has drawn explicitly on the scientific and philosophical bases of the ecological worldview and regenerative paradigm.

[iv] One result of this is that technologies like green roofs and living walls are labeled regenerative, yet unless part of a larger ecosystem regeneration, these technologies fall short of creating regenerative effect.

[v] The following dictionary definitions provide insight into the different roles of development and design:

> *Development:* O.Fr. desveloper, "an unfolding, bringing out the latent possibilities," from des- "undo" + veloper "wrap up" a state in which things are improving; the act of improving by expanding or enlarging or refining; progression from a simpler or lower to a more advanced, mature, or complex form or stage; an unfolding; the discovering of something secret or withheld from the knowledge of others; disclosure.
>
> *Design:* L. designare "mark out, devise," from de- "out" + signare "to mark,"an act of working out the form of something; to create or contrive for a particular purpose or effect.

[vi] For an in-depth survey of the literature and articulation of attributes of place from a living systems perspective, see Mang (2009).

[vii] In the mechanistic worldview, quantitative data is the key to knowing, and thereby being able to master how things work. In the ecological worldview, the world is "a fundamentally interconnected, complex, living and adaptive social-ecological system that is constantly in flux" (du Plessis, 2012). Trying to understand this world using the heavily data-oriented tools and metrics developed under the mechanistic worldview poses substantial challenges.

[viii] Cameron, who interviewed a number of place scholars and activists, reported that many espoused the power of "storying" place to break through entrenched conflict. "Arguments over the percentage of sawlogs in the South-East Forests were never resolved because they were code for fundamental differences in view about the value and function of forests in society which were never articulated… environmental debates over "things" fail to encompass the power of symbol which is at the heart of deepening into place—dialogue and the story of a place make the symbolic explicit instead of hidden shoals." (Cameron, 2002, p. 3)

[ix] Regenesis applies the term "vocation" to this contribution, drawing from former Curitiba mayor Jaime Lerner's use of the term. From this standpoint, seeing and enabling the manifestation of potential benefits the project in that it takes on new meaning and significance within a larger context. And it benefits the larger community or watershed through increasing the

value of the contributions the project can make to its health—"giving life to others as it transforms." Revealing this potential thus requires understanding the relationship between two dimensions of an entity: (1) its unique character or essence, and (2) its relationship to the larger system(s) within which it is nested, and upon which it depends.

[x] To paraphrase Leopold, "right relationship" is used here in the sense of "A thing is right when it tends to preserve (and evolve) the integrity, stability and beauty of the biotic (i.e. all life) community. It is wrong when it tends otherwise." (Leopold, 1986, p. 262)

[xi] This is what Curitiba's former mayor Jaime Lerner called "urban acupuncture," with ecological as well as social and economic ramifications.

[xii] As mentioned previously, Living Systems Thinking has been used as a system for designing self-organizing developmental processes integrated into value adding work in corporations for over 40 years, and offers the same potential for regenerative development. Creating developmental processes and systems is based on the evolutionary potential of place and people and requires understanding what that potential is.