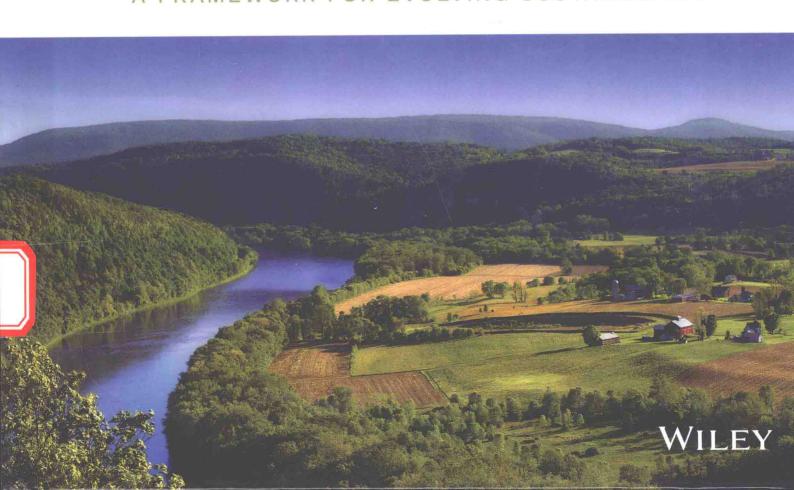PAMELA MANG · BEN HAGGARD · REGENESIS

REGENERATIVE
DEVELOPMENT AND DESIGN

A FRAMEWORK FOR EVOLVING SUSTAINABILITY

WILEY

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FOREWORD

Predictions of the future can be hazardous or downright foolish. But the failure of foresight—the inability to read the hand-writing on the wall—is even more so. Designers of all kinds work in the conflicted space between these two poles. Their goal is to improve small parts of a rapidly changing world with the tools of form, scale, materials, energy, water, color, landscape, and the creativity that is found most often at the grassroots level. But what needs to be improved?

The short answer is "a great deal," including an energy system that is rapidly destabilizing the climate, an economy driving tens of thousands of species to extinction, a political system that sanctions gross inequality, an uncivil society, the growing autism toward the natural world, and a global system mired in conflict. These are related problems, parts of a larger civilizational crisis with roots traceable to the seventeenth century authors of the mechanical world view. But there are deeper pathologies with footprints back to our ancient schizophrenia toward the natural world that had to be tamed a bit before it could be appreciated.

Designers, however, typically do not work at the macro scale of civilization for good reasons. Whether as architecture, engineering, materials, or land-scapes, design is bounded by the minute particulars of projects in their specific social, cultural, and historical context. As a result designers work from the bottom up on projects at the building, neighborhood, and city scales. But the big problems mentioned above are in large part the sum total of bad design (including that of public policies) at lower levels. There are many reasons for bad design, not the least of which is a professional focus on form-making, often oblivious to other consequences.

Beginning in the 1970s a few renegade architects like Sim Van der Ryn in California became concerned about the collateral environmental impacts of the design professions. Van der Ryn envisioned ecological design as the

calibration of buildings with their places, which required further integral understanding of landscapes, energy flows, waste cycling, materials, sunlight, water, and ecological processes. Ecological design, in other words, aims to calibrate human actions with the way natural systems work as particular places, larger landscapes, and whole ecologies. It aims to work with, not against, the flows of energy and natural cycling of materials. The goal, in short, was to reduce environmental impacts of the "built environment" in a civilization that prized economic expansion above all else with hardly a thought for the morrow.

What began so modestly in the 1970s has rapidly grown into a global movement to harmonize buildings, neighborhoods, and cities with the surrounding nature. After the publication of the Brundtland Commission report in 1987, the goals of ecological designers expanded to embrace the wider (but vague) mission of sustainability. But we know now that that word signifies more than was once assumed. Sustainability is the sum total of other qualities. As Chattanooga City Councilman, David Crockett puts it: "make it clean, green, safe, and fair and it will be sustainable." The left side of that equation, however, requires the elimination of the growing inequality that is a precursor to violence and ruined lives. It further requires rethinking our core assumptions about the relation between economic growth and real progress. Ecological design, in other words, must be large enough in foresight, scope, and heart to include the social and economic environment in which it is embedded. In that way ecological design is a radical endeavor in the true sense of the word, it gets to the root of what ails us.

The work described in this book takes design to yet another level that aims to regenerate the fabric of life and repair the wounds and tears inflicted by the carelessness of the fossil-fuel-powered growth economy. Regenerative design strives to create the conditions of health which ecologist Aldo Leopold once defined as "the capacity of the land for self-renewal." It aims, in other words, for wholeness, a word linked etymologically with healing, health, and Holy. Designers in this sense are midwives to the birth of a larger, deeper, and more resilient kind of order capable of regenerating the conditions of life and health. It is predicated on the co-evolution of human and natural systems, each supporting the other. In Robert Grudin's words,

design, "unlike any other concept . . . calls for us to create a unity of part with whole, a concord of form and function, a finished product that is harmonious with society and with nature."[1]

In this history the trend is for design questions to go to deeper levels and design projects to become catalysts for still further changes. In architect Stuart Walker's words design must, "transcend utility and conventional function-led, and especially technology-led approaches."[2] Designers, in his view, must rise above "the calculated creation of dissatisfaction" and "think more comprehensively about the products we already produce and their implications."[3] Design, in other words, must be an act of integration, not just specialization, with the goal of creating a wholeness that includes spiritual well-being. And it should start with those who serve as designers.[4]

Regenerative design has many effects. For one, it changes the relationship of people to their places. It can restore the reservoir of practical ecological competence at the local level allowing us to do more for ourselves and for each other—the things that we once did naturally as capable people, good neighbors, and active citizens. It helps ground us by better informing us of where we are and the ecology and energy flows by which we are sustained in a particular place. In a world where any one place has come to look much like any other, we have lost sight of the fine print of our lives and how we are provisioned with food, energy, materials, and spiritual sustenance.

We are mostly ignorant of the costs and consequences of the systems that provide for us so seamlessly and oblivious to their inherent fragility. Regenerative design helps us know where we are and how to be competent, respectful, and generous there. Our places should be ecologically designed landscapes whose multiple functions retain water for drought periods, manage floods, grow food and fiber, sustain wildlife, and absorb carbon. They should be working systems that blend agro-forestry, mixed-use permacultures, intensive agricultural and gardening zones, viticulture, aquaculture, water purification, restoration, and recreation. And they should be loved and managed by local citizens who use them to train young people in the essentials of managed integrated ecologies.[5]

Further, regenerative design should enhance the opportunities for caring, conviviality, celebration, and face-to-face democracy.[6] Communities with front porches, public squares, community gardens and solar systems, neighborhood stores, corner pubs, and open places of worship are more likely to thrive in the years ahead. This is because they create the conditions favorable to neighborliness, community cohesion, and buffering from hardships. Good design should engage people in the making of their homes, neighborhoods, towns, and regions. It should increase civic intelligence, sense of potential, and joy in life. In this way, designers are facilitators in a larger public conversation, architects of better possibilities, not just makers of buildings and things.

A rapidly warming climate will add to the design challenges ahead. Designers must reckon with a world of higher temperatures, stronger winds, more frequent and larger storms, rising ocean levels, longer droughts, much larger rainfall events, and new diseases.[7] These will likely cause interruptions in supplies of food, energy, and water and could trigger social disruptions. We must design with the awareness of the fragility of our civilization, as Jared Diamond and others warn. We must build in the ability to maintain hope and function as a society in emergency (and possibly breakdown) and lay the basis for recovery.[8]

The Great Work of our generation is to create a post-fossil-fuel and post-consumer economy that is regenerative, fair, durable, resilient, convivial, and democratic. It must be powered by renewable energy. It must be a circular economy that recycles, reuses, or transforms its wastes. Of necessity it will be much more focused on essentials of food, energy, shelter, clean water, education, the arts, and rootedness in place and bioregion. It will be built by local people who cherish and understand their places and the place of nature in a sustainable economy. But it must also be a political economy, a product of revitalized grassroots capability and vision. If it is to flourish, it must regenerate possibilities and capacities that grow from foresight married to practical ecological competence.

David W. Orr

ENDNOTES

1. Robert Grudin, *Design and Truth* (New Haven: Yale University Press, 2010) p. 131.
2. Stuart Walker, *Designing Sustainability* (London: Routledge, 2014) p. 35; also Victor Papenek, *Design for the Real World*, 2nd ed. (Chicago: Academy Chicago Publishers, 1984/1992) p. 252.
3. *Ibid.*, pp. 47, 45.
4. Papenek, op. cit., pp. 293–299.
5. Modeled on John and Nancy Todd's work in ecological design, the Intervale project in Burlington, Vermont is a prime example.
6. Randolph T. Hester, *Design for Ecological Democracy* (Cambridge: MIT Press, 2006), is a thorough guide to "ecological democracy" and the use of design to rebuild the sinews of a coherent, participatory, and therefore resilient society.
7. Sue Roaf et.al., *Adapting Buildings and Cities for Climate Change*, 2nd edition (London: Elsevier, 2009); Alisdair McGregor et.al., *Two Degrees: The Built Environment and Our Changing Climate* (London: Routledge, 2013).
8. For example, Lewis Dartnell, *The Knowledge: How to Rebuild Civilization in the Aftermath of a Cataclysm* (New York: Penguin Books, 2014).

ACKNOWLEDGMENTS

Changing Our Minds

Throughout history, the really fundamental changes in societies have come not from dictates of governments and the results of battles but through vast numbers of people changing their minds—sometimes by only a little bit. . . . By deliberately changing the internal images of reality, people can change the world.[1]

Willis Harmon

In the twenty-first century, human beings face global and seemingly intractable problems. However, close examination reveals that the challenges lie not in the problems themselves, but in the inherent complexity of the world within which they exist.

Most of the technologies needed to address these problems have been developed and are well understood, and yet they persist because their causes are systemic and can't be solved at a purely technical level. They require a different kind of mind, one that can creatively navigate multiple overlapping systems—economic, social, ecological, and political.

One could argue, for example, that the solution to the problem of deforestation is simple: "Plant trees." As a technology, tree planting generates beneficial results with regard to everything from climate change to degraded ecosystems to people's quality of life. Yet it has proven very difficult to summon the political will and financial resources necessary to make a commitment to reversing environmental decline through broad-scale tree planting. The technology might be simple, but managing the complex interactions among political, economic, and ecological dynamics in order to put the technology to use? That's another matter.

> The important global challenges of our time will be solved through widespread adoption of design practices that are capable of assessing and responding to the world's living complexity.

The challenges of our time will be solved through widespread adoption of design practices that are capable of assessing and responding to the world's living complexity. Regenerative development provides a framework for growing this capability.

REGENERATIVE DEVELOPMENT

The Regenesis Group first proposed the term *regenerative development* in 1995. It describes an approach that is about enhancing the ability of living beings to co-evolve, so that our planet continues to express its potential for diversity, complexity, and creativity.

> The core issue, Regenesis proposed, was cultural and psychological, and only secondarily technological.

The founders of Regenesis began with a fundamental belief that environmental problems were symptoms of a fractured relationship between people and nature. The core issue, they proposed, was cultural and psychological, rather than technological. Addressing it would require a transformation in how humans played their role as members of an ecologically connected planet. We would need to shift from seeing ourselves as separate from nature to seeing ourselves as part of a co-evolutionary whole, in symbiotic relationship with the living places we inhabit.

They further proposed that this shift is directly connected to will and agency. Managing the level of complexity that we are faced with requires consistent effort. For this reason, questions of individual and political will lie at the heart of many of the challenges we face as a species. If we don't address intangibles like motivation and will, the tangible solutions that seem so obvious will continue to elude us.

The theoretical and technological foundations for a regenerative development methodology emerged as Regenesis engaged its clients and colleagues in the practical challenges of land and community development. The goal was a meta-discipline for integrating a broad range of ecological and social dynamics.

This work drew from the backgrounds of Regenesis' members, which included architecture, business, landscape ecology, geohydrology, landscape design, regenerative agriculture, real estate development, urban planning, general systems theory, living systems theory, and developmental psychology. It integrated three distinct but complementary approaches to change:

- Living Systems Thinking: a framework-based approach, developed by Charles Krone, that consciously improves people's capacity to illuminate the inherent potential that a living system is attempting to manifest
- Permaculture: an ecological design system, originated by Bill Mollison and David Holmgren in the 1970s, that discerns patterns in natural and human systems in order to weave them together as dynamic wholes
- Developmental Change Processes: an approach to community engagement that encourages stakeholders to work together to evolve the potential of place, rather than struggling over the limits presented by existing conditions

WE ARE ALL DESIGNERS

Those who are drawn to the practice of regenerative development tend to share certain characteristics. They feel a deep connection to natural systems. They recognize that a sustainable future requires transforming not just physical infrastructure but social structures as well. They believe that how decisions are made is fundamental to creating real change, and they seek to work developmentally and co-creatively with those they serve. They make thoughtful choices about which actions are likely to be the most systemically beneficial. Put another way, they are designers.

Although this book is addressed primarily to designers working on human habitation, the principles articulated here are applicable to the design of almost anything—from industrial products to forest management plans,

educational curricula to transportation infrastructures, community econo-
mies to businesses. In other words, because design is a nearly universal
human activity, this book is not just for architects, planners, engineers, or
community organizers. Its principles can be applied by all those who wish
to better the health and well-being of their communities. Educators and
businesspeople, investors and community leaders, farmers and foresters,
architects and engineers—all have necessary contributions to make to a
regenerative way of living.

> . . . because design is a nearly universal human activity . . . its prin-
> ciples can be applied by all those who wish to better the health and
> well-being of their communities.

The purpose of this book is to provide a user-friendly introduction to the nature
of thinking that is fundamental to regenerative development. Through real-
world examples and general principles, it provides a framework for rethink-
ing what design and development have the potential to accomplish. From a
regenerative perspective, any project, no matter how modest, can generate
beneficial impacts that ripple out and contribute to making a healthier world.

Because this practice was first evolved in arenas of land use and community
development, the vast majority of the examples offered in the following
chapters are drawn from these fields. However, regenerative development
is organized around a set of design principles that are broadly applicable.
Design, after all, is the application of forethought to something we wish to
achieve. Teachers design curricula, activists design community engagements,
and doctors design medical protocols in much the same ways that planners
design town centers.

Regenerative development lies outside of the mechanistic habits of thought
that are cultivated and sustained by most educational, social, and economic
institutions. This means that regenerative development can feel elusive and
challenging at first. Its language can seem opaque, its meanings slippery and
hard to grasp, because words are being used in unfamiliar ways, marked by
the continuous flow and change that is characteristic of living, evolving sys-
tems. But even so, regenerative development can be understood by anyone

with the will to engage with it. Our human minds, with their elegance and power, are the products of the same evolutionary flow and change as every other living system. Nature, one might say, is our nature.

AN INVITATION

The thinking behind regenerative development continues to evolve through project work and in dialogue with diverse sustainability practitioners. A core aim of this book is to extend an invitation to join in that exploration. Regenerative development is itself a co-evolutionary process that will continue to deepen and ramify as new practitioners, disciplines, and cultures bring their perspectives to defining a new, participatory role for human beings on a rapidly changing planet. We at Regenesis see ourselves as part of a tradition that started before us and will continue long after us. The journey is only beginning.

> The present moment offers the potential, born of crisis, to transform the way humans inhabit Earth.

The present moment offers the potential, born of crisis, to transform the way humans inhabit Earth. To do so, we must learn to respond creatively to an increasingly unpredictable world. We must enable the places where we live and work to thrive, not just sustain a precarious balance. We must embrace the inherently beautiful complexity of life as a source of innovation and evolution. We must discover new ways to participate in a dynamic universe.

An old Sufi story beautifully captures our historic moment: *There once was a man who was renowned in his village and the surrounding region for his wisdom. Two young jackanapes decided to test him. "Let's catch a small bird," said one to the other. "We'll ask him if it's alive or dead. If he says it's alive, I'll crush it in my hands. If he says it's dead, I'll let it fly away and prove him wrong." When they approached the sage, the youth called out, "Old man, hidden in my hands is a bird. You have great wisdom. Can you tell me if it is dead or alive?" The wise man looked him in the eyes, and with a gentle smile replied, "It is in your hands."*

Our destiny? It is in our hands.

FIGURE A.1 Our destiny? It is in our hands.

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ENDNOTE

1. Willis Harmon, *Global Mind Change: The Promise of the Last Years of the Twentieth Century* (New York: Warner Books, 1990), pp. 155, 157.

THE FUTURE OF
SUSTAINABILITY

*We have an incredible opportunity to improve life
on this planet for all living beings.*[1]

Daniel Wildcat

Over the last decade and a half, the global sustainability movement has grown more rapidly every year. Aided by blockbuster films, startup industries, and widening impacts of climate change, the practice of sustainability has shifted from twentieth-century geeky backwater to twenty-first-century international dialogue. Cities around the world are in a race to show who can be greenest quickest. Businesses tout their sustainable practices as a marketing advantage. Green products compete for shelf space in retail markets with a war of adjectives—natural, holistic, organic, sustainably harvested, fair trade. Today the debate is shifting from *whether* we should work on sustainability to *how* we're going to get it done.

This focused attention has led to an explosion of creative activity and new methodologies: cradle-to-cradle, natural step, permaculture, biophilia, living buildings, eco-districts, resilience planning, transition cities, and integrative and biomimetic design. But a superabundance of options for what we *can* do has also made figuring out what we *should* do more challenging (Figure B.1).

Professionals and citizen activists alike find themselves challenged: "How do all these approaches fit together?" "How do they connect with my work?" "How should I choose among them?" "How can I know that they are leading to a more sustainable world?"

To successfully access and employ the power of this rapidly changing field, we must see the relationships among these varied strategies and how they fit together. This becomes possible through an integrative framework called *regenerative development*.

FIGURE B.1 A growing cornucopia of green design choices makes it ever more challenging for designers to sort what we *should* do from what we *can* do.

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To successfully access and employ the power of this rapidly changing field, we must see the relationships among varied strategies and how to fit them together.

Regenerative development provides a context and guide for understanding the multiplicity of sustainability approaches as a coherent phenomenon that is genuinely capable of matching the complexity of today's global issues.

A GROWING NEED FOR INTEGRATION

Analysts typically trace such rapid growth in a modern industry to the rise of global communications or the economic incentives of new markets. But in this case there is a deeper explanation. The primary driving force behind the growth of sustainability has come *from Earth itself*. Whatever one believes about the causes, it is evident that every one of our critical planetary support