



Levels of Regenerative Agriculture

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Preface

The term “Regenerative Agriculture” originated more than 30 years ago but recently has experienced a meteoric rise in public interest¹. Global consumer product goods companies and non-profits are elevating the discipline to greater visibility and discussion². This explosion of excitement and engagement has great, positive eco-social potential for individuals, farms and businesses. However, some uses over-simplify, banalize, or fragment Regenerative Agriculture, instead of engaging with it as a whole and viable discipline.

To enhance the global conversation and grounded practice of Regenerative Agriculture we introduce a matrix of Living Systems Frameworks. We aim to do so in a way that invites positive engagement, personal reflection, and the growth of a joyfully effective community of focused action.

Our goal is to support Regenerative Agriculture practitioners, organizations, and investors to radically transform Earth’s agriculture as a step on the path to an ecosystemically vibrant, socially equitable, culturally diverse, and spiritually meaningful global system of regenerative potential.

Sources of this Work

We have been practicing Regenerative Agriculture for more than a decade. We are inspired and informed by [Darren Doherty](#), [Eric Toensmeier](#), [Dave Jacke](#) and [Gaia University](#). Our previous monograph, *8 Forms of Capital*, was sparked by work with [Catherine Austin Fitts](#).

However, the major source of thinking and development presented in this paper is [Carol Sanford](#). Much of our current understanding and strategic action towards global regeneration comes directly from the Living Systems Frameworks stewarded by the [Carol Sanford Institute](#) and the [Regenerative Business Alliance](#).

¹ See for example the Patagonia Provisions film ‘[Unbroken Ground](#)’, the state of Vermont’s proposed [Regenerative Agriculture Certification Bill](#), recent [Guardian](#) articles and [The Soil Story](#), supported by Al Gore and others. The earliest publications using the term are Francis and Harwood (1985) and the Rodale Institute’s Regenerative Agriculture Association.

² Global consumer product goods companies including Patagonia, Organic India, Nutiva and Lush Cosmetics and non-profits such as Project Drawdown, Kiss the Ground, Carbon Underground, Regeneration International, Via Campesina, and the Apios Institute all refer to Regenerative Agriculture, although the meaning may differ with each use.

Self-Assessment & Reflection

The Levels of Regenerative Agriculture is a framework for self-assessment and collective aspiration. If you find yourself or your organization assessing others, having a sense of “better than” or “worse than” others, you may drop out of the regenerative field and purpose of the framework entirely. Critical thinking and true dialogue are essential for effectiveness. Shaming, criticizing, comparing, and aggrandizing are counter-productive to the larger aims of the Regenerative Agriculture movement.

There is no moral judgment of “good,” “bad,” “better” or “worse” inherently connected to or implied in the four levels. Each level has a different capacity to hold and manage complexity and different scales of potential transformational impact. No particular level is “better” or “worse.” Each level will emerge as the eco-social capacity and capability of the farmers, the land, and the place evolve. We recognize that it will be difficult for anyone living in competitive and comparative societies to *not* attach some form of value judgment to the levels, and by extension, to themselves or their peers.

Notice when and why you start “comparing.” What effect does “comparing” have on you? When you speak with someone else, does “comparing” impact the dynamic of your conversation? Finally, what are the greater implications of “compare-and-compete” mentality on the systems you seek to change?

4 Levels of Regenerative Agriculture

This framework offers a way to discern different levels of Regenerative Agriculture. It supports the conscious design of effective, multi-capital-profitable farms and enterprises. Each level transcends and includes the level before it, so that the positive benefits of the Level 1 carry onwards, and are expanded, in Level 2. The names and core features of the levels are as follows:



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Regeneration itself is multi-layered, and ever-evolving, so it is important to note that these are not the only levels. As the global awareness and actualization of Regenerative Agriculture systems increases, the community of practice will add and refine the levels presented here.

We aim to spark dialogues that lead towards ever more whole, effective, and widespread use of Regenerative Agriculture. We describe four levels of thought, with questions that invite you to further reflect and engage. We believe that your fresh thinking will add to the intellectual and experiential capital commons that will be a foundational pool to regenerate living capital for thousands of years.

“Defining” Regenerative Agriculture

It’s important to start with this: Regenerative Agriculture cannot be defined.

“What does Regenerative Agriculture aim to regenerate?”: The health, vitality, and evolutionary capability of whole living systems.

In this context, why is it inappropriate to “define” what regenerative agriculture “is”?

“Define” literally means, “bring to an end.” It comes from the Latin verb, *definire*, composed of *de-* "completely" + *finire* "to bound, limit," from *finis*, "boundary, end." This is the opposite of regeneration. Confining the subject to a single “ending or limit” would be antithetical to the processes that our discipline seeks to bring into agriculture.

Insisting on a single definition would put a wall around our agricultural landscapes, separating them from the natural world. This is the impact of modern, chemical ‘clean cultivation’ techniques that can remove all traces of living, biodiverse habitats or possible natural volatility from the fields where our food grows.

Regenerative Agriculture calmly cracks and composts these walls in our landscapes and ultimately in our minds. Each community of practitioners in each bioregion of the world has the opportunity to re-generate the ecocultural meaning of “Regenerative Agriculture.” They will do so in a way that is unique to their place, history and whole living ecosystem.

This paper offers a living framework for understanding, practicing, and expanding Regenerative Agriculture. It provides a pattern-level heuristic for an ever-more effective and holistic system of farming and culture.

Level 1. Functional Regenerative Agriculture

The starting place for thinking in the first level is that humans can do good through their agricultural production. This is a paradigm shift from the perspective that all agriculture damages or is at odds with natural systems. For much of the 20th century, agriculture and conservation have been pitted against each other, in many cases for good reason: Most industrialized agriculture relies heavily on polluting fossil fuels and the destruction of indigenous landscapes, ecosystems, and people. Regenerative Agriculture aims to reconcile the perceived tensions, by turning human intelligence and innovation towards creating agricultural landscapes that functionally improve ecosystems and communities.

Regenerative Agriculture is qualitatively different from so-called sustainable agriculture methods that aim to either "do no harm" or "reduce harm." Promoting efficient agriculture that "uses less water" or "applies fewer chemicals" fall squarely into this realm. For example, disposable water bottles that use 15% less plastic and thus "do less harm" still damage to some extent an already degraded environment. There are limits to what can be accomplished with reducing resource burdens. Even "zero damage" would leave us and our children in a polluted world with eroding, nutrient-diminished soil. Instead, Regenerative Agriculture aims to heal and restore damaged land for the good of all.

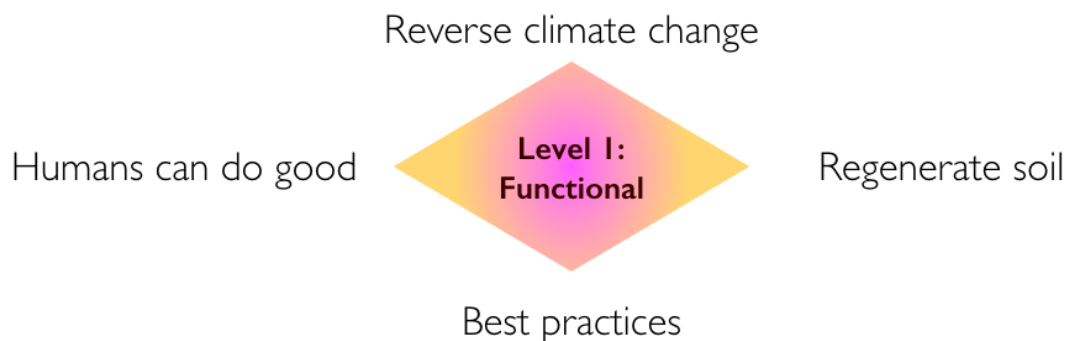
The main goal of the first level is to regenerate soil. In recent years, the good work of the Rodale Institute and some members of the global agroecology movement have focused on tweaking organic agriculture practices so that carbon is sequestered in the soil, increasing organic matter while growing (mainly) the same annual vegetables and grain crops that have been supported by industrialized chemical agriculture.

The main way to improve soil continually is to adopt a set of best practices for each farm. Best practices include rotating crops, tilling minimally and adding compost. These techniques regenerate soil and bring multiple benefits to the farm's ecological functioning (Lal, 2014; Altieri, 1995). Especially important is to develop a mega-diversity of underground microbiology: nurturing a diverse soil and food web buffers plant stresses and enhances nutrient cycling (Ingham, 2010). Farmers can expect increased yields and resilience over time, which can increase economic profits (Salatin, 2012).

With the effects of climate change intensifying, on-farm techniques to increase robustness against severe weather events are essential. By capturing carbon in the soil, the excessive and irresponsible carbon emissions of industrialized regions can be sequestered if enough farmers and agriculture companies adopt best practices. Thus Regenerative Agriculture simultaneously can be a strategy for both climate change mitigation and adaptation.

Nonetheless, “mitigation of harm” is not a sufficiently revolutionary aim for Regenerative Agriculture practitioners. As noted previously, this approach came out of the “sustainability movement.” Alongside the direct benefits to individual farmers and farms, companies and organizations around the world are excited about the first level of Regenerative Agriculture as a means of *reversing* negative impacts of global climate change. Integrative level Regenerative Agriculture practitioners see the potential of sequestering so much carbon that atmospheric CO₂ could begin to decrease within 25 to 50 years, and eventually return to pre-industrial levels. Such a reversal could reglacierate the Alps, Kilimanjaro, the Andes, and other previously glaciated mountain ranges (Soloviev, 2016).

Most proponents of Regenerative Agriculture are thinking and acting from the first level. It is a huge and practical step forward from most of recent agricultural practices. Only rapid adoption would achieve enhanced farm system robustness and a more stable biosphere.



Reflect on the Functional Level:

- What farms or organizations do you know that approach agriculture from as a set of best practices?
- What farms or organizations could you invite to step towards regenerating soil and reversing climate change?

Level 2. Integrative Regenerative Agriculture

The second level of Regenerative Agriculture sees even greater potential for humans and their agricultural systems. Practitioners move beyond individual acts of 'doing good' as in the first level; Here the only limit to the amount of good that humans can do is our own creativity and design ingenuity. We can do huge potential good through our agricultural systems - not just stop the planet from getting worse, but radically improve the places where we farm.

The goal of the second level is multi-factor regeneration to grow the health and vitality of whole living ecosystems, beyond the soil. Farming can do more than add carbon to soil; it can increase functional biodiversity, provide wildlife habitat, improve water cycles, repair damaged landscapes, regrow forests and rapidly regenerate all life systems of a farm landscape. It can even increase the amount of food produced from agricultural systems (Altieri, 1995; Mae-Wan Ho, et al., 2013).

Single best practices are combined into integrative whole systems. Level two Regenerative Agriculture practitioners take a design approach to farming. They use the design principles and tools of carbon farming (Doherty 2016; Nicholls and Altieri, 2016) and learn from permaculture and Holistic Management^{®3}. They articulate clear holistic goals for each farm, analyze the full landscape and assess it from an ecological perspective. Individual agricultural enterprises are chosen and crop species are selected for optimal fit to the farm's ecology, drawing from a full palette of carbon-sequestering agriculture strategies (Savory, 2016; HMI, 2016; Mollison, 1996; Doherty, 2016; Jacke and Toensmeier, 2005; Toensmeier, 2016).

More often than not, level two farms incorporate tree-based agroforestry systems because they are significantly effective at capturing carbon. In multiple climates, agroforestry has been shown to capture 15 to 41 metric tons of carbon per hectare annually, as opposed to the relatively low one to six metric tons of carbon per hectare annually demonstrated by level one systems like the Rodale Institute's trials (Rodale 2014). Nutrient cycling in level two systems often integrates animals. Combining the carbon benefits of holistic grazing—which captures two to five mt per hectare annually—with perennial tree cropping can increase carbon capture to 10 to 17 metric tons per hectare annually (Toensmeier, 2016).

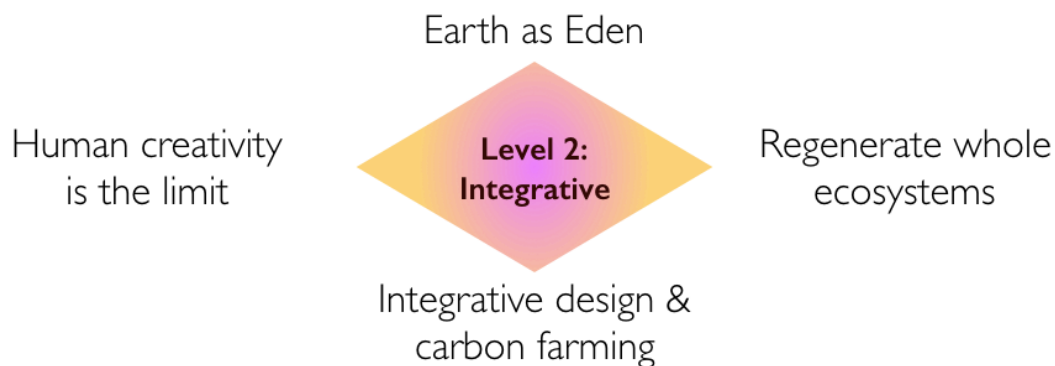
These levels of potential carbon capture encourage us to explore full life cycle assessments of farming systems. To claim a truly Regenerative Agriculture, we should apply life cycle inventory and assessment processes to document the net-positive impact of a farm. Incorporating newer approaches like hand-printing into life cycle assessment could give a robust and holistic view of the farm system.

³ Holistic Management ® is a registered trademark of Holistic Management International.

Ultimately, integrative-level practitioners aim to transform the whole planet into a verdant modern Eden. The work at the first and functional level of Regenerative Agriculture can have a fear-laden, reactionary tone: “We must reverse climate change right now, or else!” Instead, integrative farmer-designers aim for rich and measured abundance for all people and beings on Earth.

Emblematic of level two, pioneer agroecologist and integrative design thinkers Mollison and Holmgren write in their earliest publication, *Permaculture One*:

“Perhaps we seek to recreate the Garden of Eden, and why not? We believe that a low energy, high yield agriculture is a possible aim for the whole world, and that it needs only human energy and intellect to achieve this.”



Reflect on the Integrative Level:

- Where have you experienced fear and reactivity around climate change? What is the qualitative difference between this feeling and the one generated by a vision of integrative Regenerative Agriculture?
- What farms or agriculture enterprises do you know that have the opportunity to incorporate Carbon Farming into their systems?

Level 3. Systemic Regenerative Agriculture

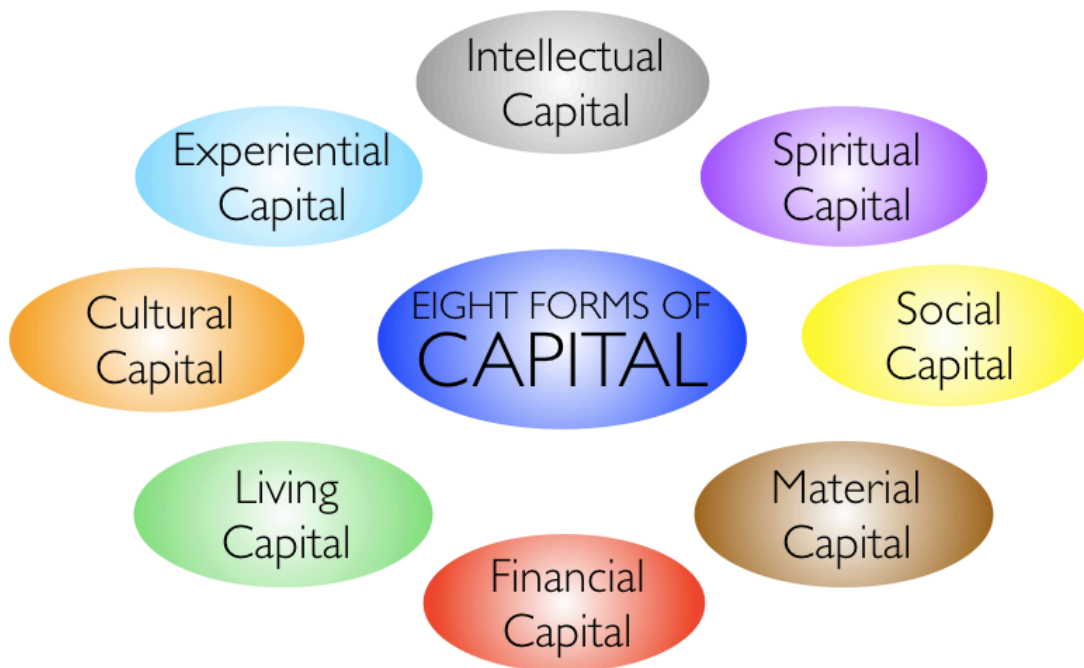
At the systemic level, Regenerative Agriculture is a way of thinking, not just a set of practices or design strategies. We as human beings begin to see ourselves as nature itself, understanding that if we seek to develop the landscape we must also develop ourselves. Especially important to grow is our capacity to see and manage the complexity of interdependent living systems, which requires pattern recognition and, eventually, pattern generation (Glanzberg, 2015).

Living systems are non-linear and have complex causal webs, so efforts to work only “by design” fail in the face of natural randomness and volatility. Although each level of Regenerative Agriculture produces strategies and actions that move towards robustness and resilience, in the systemic level practitioners actively aim for antifragility in their farming systems. Antifragility, a large step beyond resilience, is the property of a system that actually *benefits* from disorder and disturbance (Taleb, 2012).

The outcome of the systemic level of Regenerative Agriculture is that farms are woven into an ecosystem of enterprises operating in (and possibly beyond) their bioregions. Conscious mimicry of local ecology increases resilience and antifragility of the group of enterprises. In the ground, diverse soil food webs increase mutual symbiosis among plants, fungi, bacteria, and other macro- and micro-fauna. In the same way, businesses can work together to develop the health and vibrancy of eight forms of capital without any single enterprise taking on too much of an individual burden (Roland and Landua, 2013). Design of redundancy (multiple enterprises nurturing each form of capital) can increase shared learning and innovation while safeguarding the foundational pools of living and cultural capital that make each place unique.

The instruments for developing such regenerative enterprise ecosystems must in and of themselves be investments of multiple forms of capital (Fullerton, 2015). Financial and material capital are put to use to develop the tangible living capital of farm systems, while social intellectual and experiential capital nurture a dynamic web of human relationships and decision-making capabilities.

Direct investment can be supplemented by facilitating market-based flows of capital, as in the case of the cacao cooperative, UOPROCAE, in northern Ecuador. Terra Genesis has been working with the producers for nearly a decade to support their self-determination and development of organic and Regenerative Agriculture. In recent years, Terra Genesis has connected several of its corporate consulting clients directly to the cooperative, so that their bulk purchases of cacao provide economic support for Regenerative Agriculture while simultaneously meeting company supply needs.



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The third level of Regenerative Agriculture requires a consistent and conscious evolution of our thinking, evolution of the land, and evolution of the ways we think about the land. No farming season is ever the same; no landscape is ever identical to how it was in the past. Humans see the shifting and developing patterns of a place. More importantly, we can grow our abilities to harmoniously engage with a place so that our farming systems capture more carbon, offer more ecosystem services, and are more beautiful and fun to live in every year.

We encourage readers to start to re-pattern their thinking. One of the most effective ways to do this is to use structured Living Systems Frameworks as a guide. Frameworks are not predictive models that give step-by-step paths along a predetermined route⁴. Instead, they function like a generative 'lens' through which situations can be assessed, discussed and acted on.

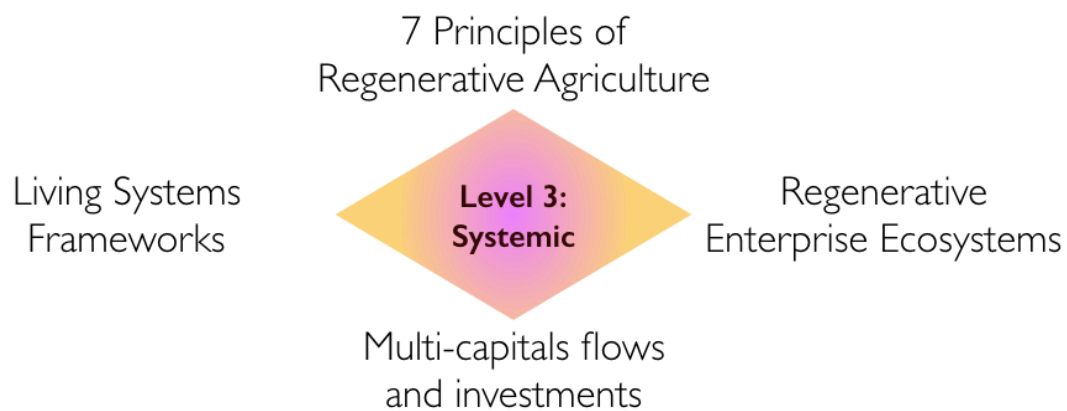
For example, the *8 Forms of Capital* framework does not offer any "answers" but invites participants to think freshly about the forms of capital needed to invest in a new agricultural enterprise ecosystem. Novel thinking can be generated for each situation with each group of people and their landscape. The framework guides individuals and groups to think more holistically about the different forms of exchange and investment that must occur; the framework systematically changes what we think about and how we think.

⁴ See the examples discussed by Jackson (2012), Zetlin (2014) and Connor (2015).

The overall guiding direction of level three is a living tree that we name as, *7 Principles of Regenerative Agriculture*. The principles are derived from observing natural and agricultural systems through the First Principles of Regeneration articulated by Carol Sanford and the Regenerative Business Alliance. We will describe these principles (adapted for farming) in greater detail after exploring the fourth level of Regenerative Agriculture.

7 Principles of Regenerative Agriculture

1. Work with wholes, not parts
2. Design for non-linear, multi-capital reciprocity
3. Make holistic decisions aimed at specific systems change
4. Express the unique irreplaceable essence of each person, farm and place
5. Continually evolve agro-ecological processes and cultures
6. Connect the farm to its larger agroecosystem and bioregion
7. Agriculture shifts the world



Reflect on the Systemic Level:

- What is the relative abundance of each form of capital in your life and in your primary endeavors?
- What local businesses, organizations, and individuals could grow a regenerative enterprise ecosystem in your place?

Level 4. Evolutionary Regenerative Agriculture

This level comes from a pattern understanding of the place and context of the agricultural system. Deep understanding of the geology, hydrology, ecology, plants, wildlife, and human history is required. This depth of pattern-understanding may take 50 to 100 years to grow on its own. It is usually only found with multi-generational inhabitants of the land in any given place. The only way we have seen to gain this insight more rapidly is through the Regenesi Story of Place^{®5} process (Regenesi, 2016).

Each farm ceases to be seen as a fragment of a larger system; it is no longer a lone entity divorced from context. Through the Regenesi “storying” process, a crystal-clear and unique essence of place is revealed. This essence can inspire and organize potential, through which farm, business, and social systems can be designed and actualized. With deep understanding of a farm's context and essence, these agri-ecological-economic systems could go beyond earlier approaches of matching crops to the current landscape: they harmonize with the longer-term story and potential of a place.

In many (if not all) landscapes of the world, discovering the history of the peoples will uncover painful stories of colonization, oppression, and sometimes, genocide. Starting in level three, Regenerative Agriculture practitioners have an opportunity and responsibility to learn, grieve, and seek to reconcile history's deep socio-cultural footprint with the next generation of farming.

The first two levels of Regenerative Agriculture may focus on the physical landscape, but we believe that work in the systemic and evolutionary levels require human reconciliation. This shift must happen in both the land and the internal landscapes of the people and communities living and working in the place. We see the work of the Restorative Justice community as especially valuable. Also valuable are the practices of Re-evaluation Counseling (via the Sustaining All Life project) and the efforts of numerous indigenous rights and climate justice activists around the world.

The objective of the fourth level of Regenerative Agriculture is to develop a diversity of global and local regenerative producer webs. These are an advanced evolution of supply chains, the currently dominant concept of how agricultural (and other material) goods are exchanged. Consciously or unconsciously, the imagery of a "supply chain" directly recalls the early capitalist era of colonization, where traders literally used slaves in chains to supply agricultural commodities to their expanding empires. The term is used ubiquitously now to describe how

⁵ Story of Place[®] is a registered trademark of Regenesi Group.

companies get the materials they need to produce their products, but it contains and encourages several significant errors:

- The phrase comes from a mechanistic world-view, where complex human and ecological systems are treated as if they are machines. Chains do not exist in natural systems (Sanford, 2014).
- Chains are linear, made of metal, hold things secure (or in bondage), and facilitate uni-directional movement. These characteristics do not match the complex multi-directional network of exchanges and relationships through which materials actually flow.
- Supply chains are mechanisms of one-way extraction: they can strip value out of a place and bring elsewhere, often in an inequitable exchange. Through the lens of the *8 Forms of Capital*, limited financial capital is exchanged for quantities of living and material capital, while simultaneously degrading living, social, and cultural capital.

A global economy incentivizes the movement of agricultural goods and laborers around the world. "Supply" still needs to occur. How can we move towards regeneration? The first step is to shift from "supply chains" to "supply webs," with greater multi-directional interconnections, redundancy and resilience. The next step is to participate in the creation of regenerative supply webs where suppliers and buyers collaborate to consciously regenerate agriculture systems, and develop and empower communities.

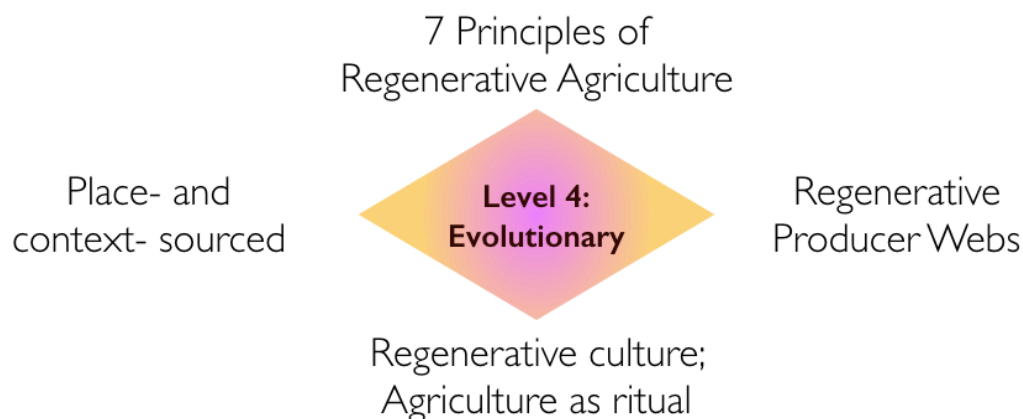
Level four regenerative agriculture systems involve another transformation of perspective. Rather than entities taking the roles of suppliers, middlepersons and buyers, all entities would produce value for each other. This understanding would lead to regenerative producer webs, where complex networks of enterprises produce and exchange goods and services in a way that continuously adds value to each other, their customers, their investors, and the Earth (Soloviev and Landua, 2015; Sanford, 2011).

The value-adding processes are detailed in Sanford's *The Responsible Business*, a book with examples from well-known multinational businesses. An important addition for the evolutionary level of regenerative agriculture is that each entity in the regenerative producer web increasingly learns its Story of Place®, so that the value produced for other members of the web is a direct expression of the uniqueness of its landscape.

To move towards regenerative producer webs that are deeply embedded in and expressing the uniqueness of place requires that we go beyond the act of farming itself. Deeply regenerative agriculture can exist only if it is completely interwoven into a thriving regenerative culture. This includes the songs, stories, myths, rituals, foods, ceremonies and music that transform agriculture from a functional economic activity to a spiritually rich and emotionally fulfilling central heart of an agricultural community. Without an engaging, supportive, and meaningful community, farmers and entrepreneurs may struggle with hard work in isolating social circumstances.

The evolutionary level invites practitioners to create new bioregional cultures that draw from the wisdom of the agrarian past of their place, while re-generating cultural systems that are appropriate to the current and coming generations. This is by no means a short-term undertaking. Cultural evolution, sourced from the Story of Place® and living systems frameworks, will probably take several generations to mature in each unique place. A regenerative culture has renewal built into it, so that the culture remains fresh and adapted to the changing state of the land, people, and global climate. Agriculture becomes a central set of annual rituals and ceremonies that is integral to the ongoing regeneration of culture.

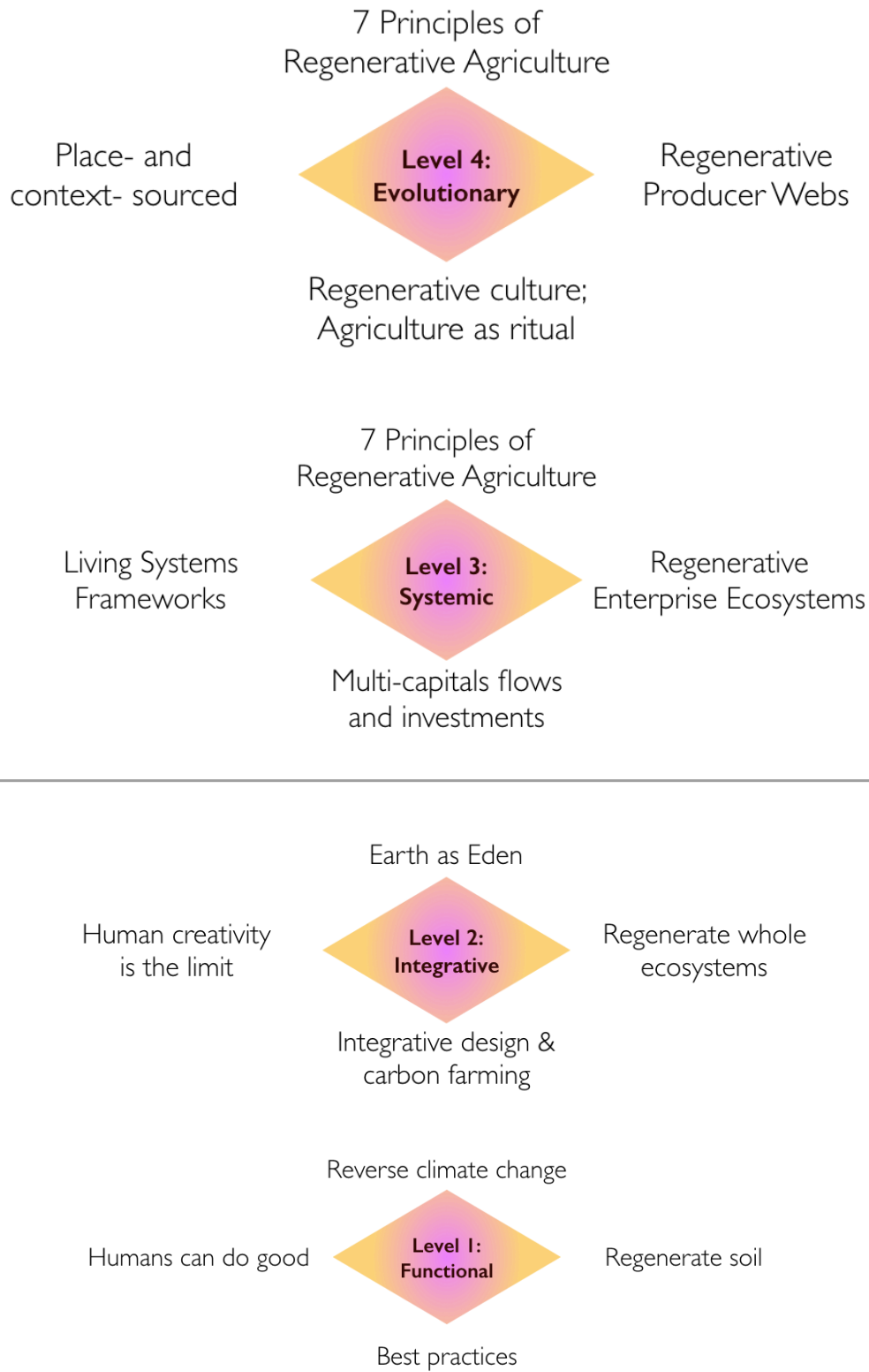
The overall guiding direction for work in the Evolutionary level are the 7 Principles of Regenerative Agriculture, which we will explore in further detail in the next section.



Reflect on the Evolutionary Level:

- What primary frameworks are presented or engaged in this paper? How do these frameworks shift your perception of Regenerative Agriculture?
- Where do you see opportunities for the development of regenerative producer webs for products you use?

Summary: 4 Levels of Regenerative Agriculture

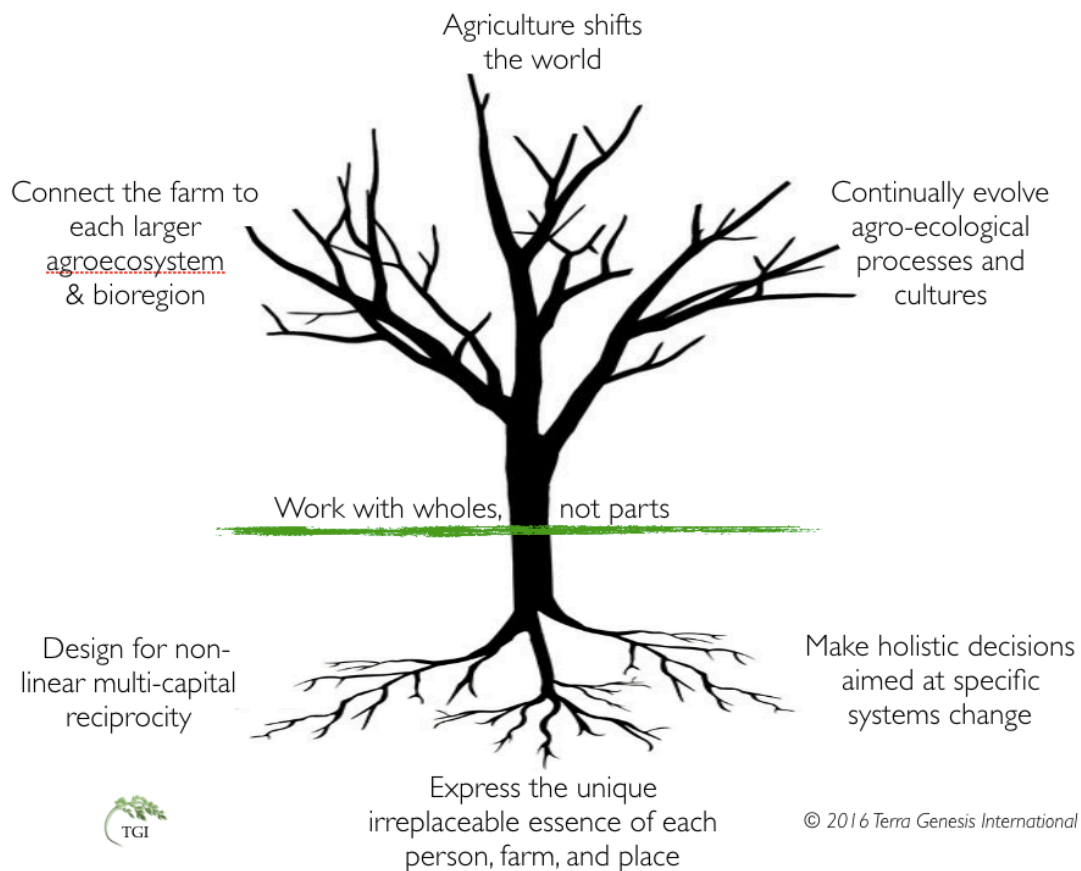


7 Principles of Regenerative Agriculture

The next framework to enhance the practice and potential of Regenerative Agriculture is expressed as a living tree of principles. Principles are guides to behavior or action that can uplift thinking and immediately be applied to work (Sanford, 2014; Mollison, 1996).

We present the principles as directives, and have given a few examples from farms that we see engaging at different levels of Regenerative Agriculture.

We would love to hear examples from your farm or agriculture business, please add them to the discussion: www.terra-genesis.com/regenerative-agriculture.



Principle 1. Work with wholes, not parts

Instead of segmenting and fragmenting the agricultural landscape, work with an image of the whole farm in mind. Make decisions that benefit the whole system. For example, rather than making separate decisions about crops, irrigation, and nutrient management, see them as one whole dynamic organism. Choose crops that are water-appropriate for your bioregion, plant them in patterns that utilize passive water-harvesting earthworks and fertilize with composted nutrients from animal systems that are fed by excess crop biomass and surplus rainwater.

Principle 2. Design for non-linear multi-capital reciprocity

All eight forms of capital will be in play on a regenerative farm. Direct causal relationships may be a challenge to articulate. Invest in social capital, even though direct financial-capital returns may not be visible; profits may show up in living or material capital that could open new opportunities for the farm. Caring for the four nurture capitals (living, social, cultural and spiritual) should produce long-term returns for the whole system that cannot be predicted or pre-determined.

For example, at Finka Aekolado (a member of the Ecuadorean cacao cooperative UORPROCAE), a long-term relationship with a neighbor which included building a shared road and co-financing aerial drone photography did not immediately yield financial capital returns. Yet when the neighbor decided to sell the land, Aekolado obtained right of first refusal, potentially doubling its available living capital and tripling its potential financial capital returns.

Principle 3. Make holistic decisions aimed at specific systems changes

Working with the whole system of a farm, make choices that aim to simultaneously benefit the place and make change in a specific larger system in the world. For example, Finka Aekolado planted a diversity of heirloom cacao varieties that are better adapted to local bioclimactic conditions and can sell for higher value, benefitting the farm. With this action Aekolado aims to change the global system of chocolate making by producing uniquely flavored beans and processing them at origin to circumvent commodity markets and add value for local producers. The resulting chocolate is remarkably delicious, encouraging customers to vote for Regenerative Agriculture with each purchase.

This principle invites a different approach than standard Holistic Management® practice. Instead of basing decisions around a farm family's desired quality of life, we propose that decisions be made based on their strategic influence on something larger than the farm or decision-maker. This leads to a wider view of world systems and increases the capability of Regenerative Agriculture entities to contribute meaningfully to changes in their communities and industries.

Principle 4. Express the unique and irreplaceable essence of each person, farm and place

Every entity has a unique essence that is deeper than personality and simultaneously more focused and domain-independent than is a set of values or a brand. Businesses that discover their essence and bring their strategy, leadership and operations into harmony with it become powerfully secure in the marketplace. Individuals who grasp their essence gain great personal agency and have potent personal value to contribute. A place that knows its essence becomes culturally proud, known by others, and its products are sought after for unique qualities (Sanford, 2016).

Farms and entities of all scales can regenerate their offerings from their essence, producing new products and services that are in harmony with their history. Therefore, each Regenerative Agriculture enterprise should seek to identify its own essence and the essence of its place, and to express them fully in its work in the world.

Principle 5. Continually develop agro-ecological processes and cultures

No farm is ever done improving its systems and processes, just as no ecosystem is ever done evolving. Working at appropriate timescales, seek novel and more effective paths for all agricultural processes. Also pay attention to how the human culture supports ongoing innovation. An enterprise that invests time and attention into human development will adapt best to changes and volatility in the ecological and economic environment.

Principle 6. Connect the farm to its larger agroecosystem and bioregion

Each farm is a whole itself, nested within a whole place, within a bioregion, within a larger ecoregion. Awareness of the interrelationships at these different scales clarifies how the farm contributes to its bioregion and how bioregional trends (including climate change, pests and diseases, new crops and shifting markets) affect the farm. Make conscious efforts to connect to the people and organizations working at different scales to expand the flow of social, intellectual, and experiential capital coming to and from the farm.

Principle 7. Agriculture shifts the world

We are optimistic that humans can reclaim the role of a beneficial keystone species in the larger global ecosystem. Agriculture, if practiced regeneratively, captures huge amounts of carbon and helps reverse global warming. At the same time, Regenerative Agriculture reconnects people to vibrant, healthy food and local cultural traditions, while empowering the two billion people directly involved in agriculture. Growing food and fiber is a human necessity that has the potential to focus attention and creativity into ecological and social regeneration. Regenerative Agriculturists farm and market their products with pride, knowing their work shifts the world in a positive direction.

Conclusions

The frameworks we present in this paper are a matrix for design and decision-making. They can guide your work on whole living systems. Instead of providing limiting definitions or one-size-fits-all solutions, the frameworks are lenses through which each entity can discern, choose, and develop a unique path towards regeneration.

The 4 Levels of Regenerative Agriculture are ordering; they envision a farm or agricultural endeavour in its current context and reveal its larger potential. Progressing from functional to integrative to systemic to evolutionary, the ability to manage complexity and make change on specific world systems increases. Each level has characteristic foundations, goals, processes, and guiding directions to organize work. As practitioners and communities grow their capabilities to consciously design and act on the full expression of each level, the higher-order potential of the next level becomes available.

At the systemic and evolutionary levels, the 7 Principles of Regenerative Agriculture are tangible tools to improve systems design and development. Each principle can be seen as a gradient of achievement along which to measure a farm or enterprise's progress. Ask, for example, "To what extent do we express our own unique irreplaceable essence? How far have we come towards this? How can we develop our ability to go even further?" Taken as a whole, the 7 Principles offer a clear path for any entity to improve its effectiveness and regenerative potential.

We invite the global agricultural community to apply these frameworks to thinking and actions. We want to sustain a deep dialogue with farmers, businesses, communities, investors and governments. Now is an important time in human history to transform conventional farming into Regenerative Agriculture.

Conversation and discussion are important but to transform, we must go beyond talk. What actions will you take, in your life, in your bioregion and on your continent? What would happen if every farm enterprise in the world applied the 7 Principles to their business? What would the world look like when 100% of our food is grown in Regenerative Agriculture systems? Let's find out, together.

Join the conversation at terra-genesis.com/regenerative-agriculture

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About the Publisher

Terra Genesis International consults globally on regenerative agriculture and systems of supply. We offer supply risk assessments, direct trade development, model farm design, vertical integration strategy, corporate education and coaching services. With offices in Europe, North America, Asia and South America, Terra Genesis delivers effective and systemic results for clients around the world.

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Levels of Regenerative Agriculture

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