



Pathways through Fibersheds to Natural Resource Management, Regional Economic Development, and Bridging Cultural Divides

By Nikki Silvestri, Rebecca Burgess and Beth Raps,
with Osayi Endolyn



Table of Contents

Acknowledgments	1
Executive Summary	2
Introduction	4
PART 1: REGIONAL ECONOMIC DEVELOPMENT	6
A long way to go and a lot of opportunity for growth	7
Case Study #1: A Cutting-Edge California Wool Mill	9
Case Study #2: River Hill Ranch, Kentucky	11
Labor matters.....	13
US consumer appetite	14
Thinking regionally = thinking big-picture	15
Changing education, work, and the narrative about both	17
Economic development as environmentalism	19
PART 2: NATURAL RESOURCE MANAGEMENT	20
Environmentalism as economic development:	20
Case Study #3: Pacific Northwest Fibershed.....	21
Natural resource management is tech-savvy	23
Redesigning structures from the ground up	23
Natural resource management as climate adaptation and mitigation	24
Case Study #4: Lani's Lana Fine Rambouillet Wool, California-Nevada	25
PART 3: BRIDGING CULTURAL DIVIDES.....	27
Regenerating relationships	27
Relationships are power	28
Case Study #5: Mora Valley Spinning Mill and Tapetes de Lana, New Mexico	29
Common struggle	31
Policy, holistic thinking, and self-reflection.....	31
CONCLUSION	33
Contributor Bios	35
References	36

Acknowledgments

This paper would not have been possible without the generous support of the 11th Hour Project, and the Ecological Agriculture team who believes in this vision.

We are immensely grateful for the time and patience offered by the experts interviewed for this publication, named below. Directly or indirectly, their interviews shaped the voice and direction of this paper and it was an honor to work with each of them.

Kevin Bayuk
LIFT Economy

Shamar Bibbins
The Kresge Foundation

May Boeve
350.org

Rachel Boucher
Rach-Al-Paca Farm

Peter Byck
professor, film editor, and writer

Pam Chaloult
*BALLE (Business Alliance
of Local Living Economies)*

Michael Cox
entrepreneur

Ed Crowley
Crowley's Mill

Michael Dimock
Roots of Change

Dan DiSanto
fashion designer

Steve Dubb
*formerly of The Democracy
Collaborative*

Amy DuFault
Brooklyn Fashion + Design Accelerator

Tomas Duran
Concerned Capital

Lea Endres
NationBuilder

Lani Estill
Lani's Lana

Anthony Flaccavento
*SCALE (Sequestering Carbon,
Accelerating Local Economies)*

Natalie Foster
*The Aspen Institute,
co-founder of Peers*

Matt Gilbert
*Mendocino Wool and Fiber,
and forester in Mendocino County*

Lynda Grose
*fashion visionary, author
and professor*

Laura Harris
actress, filmmaker

Lana Holmes
entrepreneur and coach

Diane Ives
The Kendeda Fund

Sarah Shanley Hope
The Solutions Project

Ryan Huston
Huston Textiles

Sarah Kelley
Island Foundation

Anna Lappé
Small Planet Institute

Mike Lewis
Healing Ground Farms

Marianne Manilov
The Engage Network

Alvina Maynard
River Hill Ranch

Janelle Orsi
Sustainable Economies Law Center

Billy Parish
Mosaic

Raj Patel
author and academic

Andrea Plell
Ecologique Fashion

Ines Polonius
Communities Unlimited

Beth Rattner
Biomimicry Institute

Michael Skolnik
*former political director for Russell
Simmons and CEO of The Soze Agency*

Naomi Starkman
journalist, co-founder of Civil Eats

Joseph Weathers
Mora Valley Spinning Mill

Shannon M. Welsh
*Designer, Artisan, Educator
and Program Manager,
Pacific Northwest Fibershed*

Executive Summary

Designing the Future shows that investment in place-based textiles (“fibersheds”) **regenerate economies, ecologies, and human relationships**. Investment in fibersheds—as an exemplar for other economic development strategies—empowers real change in three areas simultaneously: labor and regional economic development; environmental repair, especially climate restoration; and healing across human divides.

You may ask: what capacity do we have within the US to meet consumer demand for clothing? Our current clothing need could be met with soil-to-soil produced systems within the United States alone, utilizing natural fibers such as flax, hemp, wool, alpaca, cotton, and other sources.

The paper’s point is *not* that “anything is possible.” Our point is that *much more is possible than we realize*. Economic development of the past has encouraged our consumer appetite for cheap, low-quality goods by veiling the ecological and social cost of creating

such goods. Investments in regional production chains like fibersheds support people creating jobs for their communities, rebuilds a market for regionally produced items, and provide decent livelihoods.

One key is removing barriers that privilege large-scale production and work against smallholders. Lest we think “small” means insignificant, the United Nations Food and Agricultural Organization reminds us that 80% of the world’s agriculture is produced by smallholders.

The Bureau of Labor Statistics describes the fashion economy in a way that makes it clear it is ripe for change in just these ways: “The industry is characterized by short product life cycles, erratic consumer demand, an abundance of product variety, and complex supply chains.” It thus becomes not so much visionary as obvious that investing in fibersheds makes sound economic sense.

As we show in the paper, we don’t have a jobs or a production problem—we have a design problem and a mindset

problem. Here are the components to the solution explored in this paper:

- Updated, cutting-edge education
- Revised narratives about blue-collar jobs and the importance of work that clothes us
- New technologies integrated with craft
- Focusing on genuine regionally driven, regionally planned and invested-in economic development
- Harvesting the solutions that come when we refuse to pit environment against economics.

Economic interests are often positioned oppositionally to environmental ones, so the first half of the paper addresses those directly. Part I finds that integrative economic development is environmentalism. Part II shows that *environmentalism is also economic development*.

All Earthly economics start in soil. Meeting basic human needs through a soil-centered approach roots



Rebecca Burgess with Sally Fox, on Sally’s farm in the Capay Valley (Photo by Paige Green)



*A designer works on a sweater prototype
(Photo by Paige Green)*

economic sustainability right into the solution. Environmental health can be a creative, lucrative guiding principle for fibershed businesses all the way from “sheep to shawl.” This is a “multi-system wide” approach that uses ecosystem management to care for a landscape, create jobs and make a profit.

If communities keep their production processes regional, they not only build wealth, but demonstrate that there is long-term value in preserving land by working it. We learn many useful lessons as investors in fibersheds from the sustainable food movement. In particular, the economic development of regional fibersheds as natural resource management does not close off but opens doorways for new ideas, allies, and investment to increase the pace of change. For one provocative example, we could sequester (more than) all our CO₂ emissions if we switch to practices of regenerative organic agriculture.

Thinking regionally helps ensure that climate resiliency has economic strategies that actually work by linking structurally to regional supply chains and deeply better regional livelihoods.

In Part III, we start from the premise that all people want to be acknowledged, and see real opportunities for futures they genuinely desire. We can invest in people who want to make things for a living with dignity and pride to *enable them and us* to cultivate the lifestyles we imagine. When we think multi-system-wide about ways to create blue-collar jobs and job training, especially for vulnerable populations, we see that we must take as much care designing power, ecology, and regenerated relationship into these structures as are included in the design of white-collar jobs and job “training.” Economic divides and racialized policy will greatly impact the accessibility of that future for all. And whether or not we are working directly on rural issues, we must understand them.

In Part III, we show that fibersheds regenerate relationships, of:

- producers to each other
- producers to soil
- producers to businesses that give them sustained livelihood
- producers to consumers
- consumers to soil
- consumers to sustainable jobs and businesses
- businesses to their workers, customers and soil.

The people profiled and interviewed in this paper are thinking about how to benefit people and ecosystems far beyond their regions. If we observe the examples and listen to these visionary

farmers, writers, nonprofit and for-profit entrepreneurs, what’s not just possible but already being done is inspiring. It obviously deserves our support.

What are the most strategic ways to direct that support? Our Conclusion touches on several we have thought of. We invite you to add your own, and tell us about them.

Everything we point to as possible in this paper *already* exists. Those who are able to support this new future now will make it possible for many more to do so in the near future—not only as investors but as consumers, producers, promoters.

Suggested citation for this publication: Silvestri, Nikki, Rebecca Burgess and Beth Raps, with Osayi Endolyn, “Designing the Future, Executive Summary.” San Geronimo, CA: Fibershed, in partnership with Soil and Shadow.



*Woven prototypes being assessed for a regional cloth production project
(Photo by Paige Green)*

Introduction

If there are any human rights at all, it would seem that the rights to food, clothing, shelter, and medical attention would have to be among them.
(Morsink, 192)

[W]e are so unpracticed at seeing things in relationship that we lack the ability to actualize multi-system-wide solutions....[thus the] call for “relational embeddedness”... an iterative sustainability practice enabling us to operate at increasingly complex levels over time.
(Grose, 227)

IF WE SAID that fibersheds built local capacity for natural resource management, as well as regional economic wealth and US manufacturing, plus aligned the interests of historically divided groups, you would not be alone in your skepticism. Even the most committed advocates of regenerative farming, environmental justice, or economic development would be hard-pressed to believe that investing in place-based fiber cultivation, processing and production could achieve so many of their disparate movements’ goals.

Fibersheds are a wonderful example of the barely-veiled possibilities of regional economies. Fashion and food sectors of the economy, like many other sectors, have encouraged our consumer appetite for cheap, low-quality goods by veiling the ecological and social cost of creating such goods. Investments in regional production chains support people creating jobs for their communities, rebuilds a market for regionally produced items, and provides an example of what decent livelihoods can look like. In this paper, we show **that place-based textiles regenerate economies, ecologies, and human relationships in a way that justifies significantly increased interest and investment.**

We do this by showing how fibersheds’ “relational embeddedness” (quoting Grose, above) are *already* actualizing “multi-system-wide solutions” to our crises of economy, ecology and human relationships *if we will learn to see them as such.* Grose’s quotation is our watchword in this paper: if we truly are “so unpracticed at seeing things in relationship that we lack the ability to actualize multi-system-wide solutions,” *learning to see differently is our first step.*

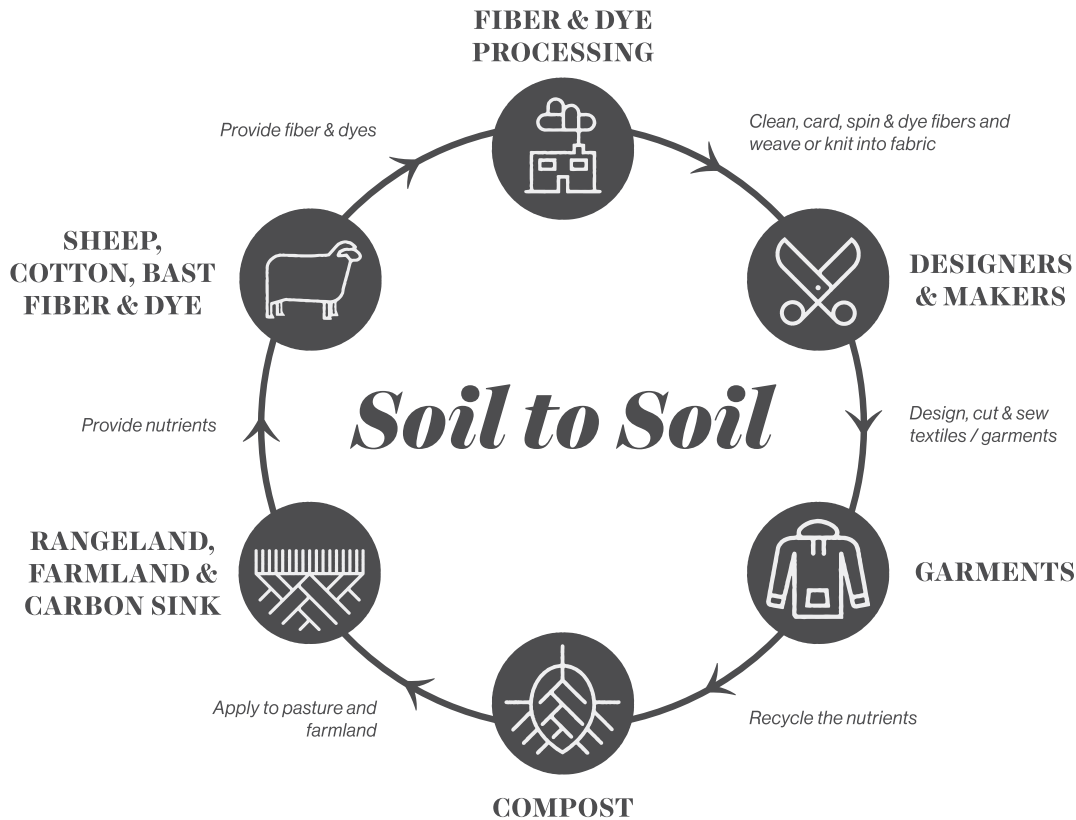
This way of seeing is the start of “an iterative sustainability practice enabling us to operate at increasingly

complex levels over time,” promises Grose—and we think she is on to something.

This paper is a guide to some real possibilities for change not in one arena but in three—labor and economic development; environmental, especially climate restoration; healing across human divides—*all through strategic investment in regional US cultivation, processing, and production of textiles.*

In this paper, we do not comprehensively represent the vast bodies of literature and primary research at this triple intersection. We touch on some of the best of those literatures and highlight some of the most important primary research. We interviewed about 40 people who know the issues, experience the obstacles, and seize the opportunities in each key arena affecting and affected by **place-based, climate-beneficial textiles, or “fibersheds.”** Our interviewees were entrepreneurs, organizers, fashionistas—and farmers, millers, and clothing-creators, all working with natural fibers, whether from animals such as alpacas and sheep, or plants such as cotton and flax. While interviews touched on many topics, we excerpted their most sophisticated, resourceful and creative thinking about **the positive feedback loops among economics, environment, and human relationships potentiated by fibersheds.** And fibersheds are a pregnant, powerful example of economic development effectively done by “relational embeddedness.”

The potential of fibersheds comes from their profound relationship with soil. What we call “soil to soil” is a way of seeing that undergirds our ability to craft multi-system-wide solutions that restore our country’s environment, mend breaks in our domestic textile supply chain and bridge cultural divides—all at the same time.



Source: Fibershed

Soil to soil is the empirical, ecosystem-embedded, lifecycle of *all* the things we own, produce, and use. Humans in the industrialized nations have thought mostly about where things' lifecycles only narrowly touch our own, to our detriment and the detriment of our environment—but also to the detriment of our relationships and our economies.

By ignoring place, we have ignored that the lifecycle of our “things” intersects with our own lifecycle. We have ignored opportunity for conscious choice over the quality of events in things' lifecycles. Ignored aspects of the lifecycle of things can be called landfills, acid rain, birth defects and childhood cancers, among many more.

Quoting the Soil and Shadow website, “Soil is at the center of life on this planet. And while one

can unintentionally degrade other ecosystems when focusing on water, animal welfare, carbon emissions, etc., it's almost impossible to degrade the ecosystem when building healthy soil. Starting with soil requires humility, attention to detail, and the willingness to re-write entire worldviews in the pursuit of true regeneration” (Silvestri).

Soil to soil is a way of seeing things in relationship that we *should* apply to everything we own, produce and use. Textiles, however, are *already* being seen this way. Reading this paper and acting on it (see the Conclusion), is a **powerful way we support and extend soil to soil right here and now.**

Let us show you. As you read, remember:

The elements of a new future are already in place. Everything we

point to as possible in this paper we demonstrate *already exists*:

- widely shared desire to commit to land practices that are economically *and* environmentally sustainable
- a growing fiber manufacturing base within the United States
- seeds of a domestic economy that values its workers.
- our domestic ability meet one of our basic human needs through clothing free of poisons to skin and Earth, sourced not just in-country but sometimes in-*county*.

Those who are able to support this new future now will make it possible for many more to do so in the near future—not only as investors but as consumers, producers, promoters.

PART 1:

Regional Economic Development



Huston Textile Company opening celebration in 2017 (Photo by Paige Green)

Our American thirst for convenience is costly, and that cost has become prohibitive. “Fast fashion” has left many casualties in its wake. Perhaps best known is the environmental harm done by most present-day large-scale fiber cultivation, processing and production into apparel and household fabrics. We will explore this in more detail in Part 2. In this paper, we discuss labor and economic issues first because they are so often positioned as obstacles to addressing environmental issues responsibly.

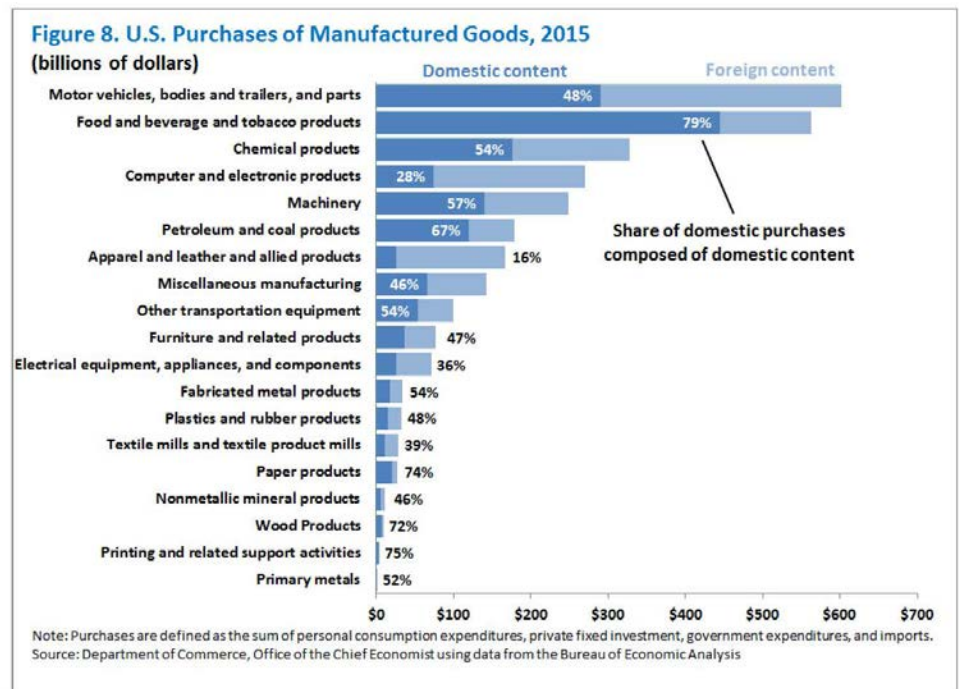
Fast fashion also divides people, especially rural from urban, and most especially inner-city urban communities from rural communities. Ironically, though many problems reported by our urban and rural interviewees were similar, each group reported isolation from the other. We look at this more closely in Part 3.

Moving now into Part 1, we see that at the macro level, fast fashion's outsourcing of labor has weakened the economic health of every region within the United States and almost destroyed our historic capacity to provide for ourselves when it comes to one of our most basic human needs: the clothes on our backs. At the micro level, another casualty of fast fashion's outsourcing of labor is that it takes jobs from working people in the United States and gives them to people working abroad for much poorer wages. Fragile labor markets tend to disenfranchise those already disenfranchised: the poor and people of color.

A long way to go and a lot of opportunity for growth

In Part 1, therefore, we show how **thinking in terms of fibersheds, and buying within them builds regional economic vitality, jobs, and wealth.** We make this statement knowing there's a long way to go. This is easily seen in just a few charts from the US Department of Commerce. Although consumption of clothing is seventh in items consumed by individuals in the chart at right, clothing is the least likely of *any* manufactured good—industrially or individually consumed—to be made in the US. **Only 16% of “apparel and leather and allied products” were made in the United States in 2015.**

The apparel industry claims, US manufacturing of clothing is starting to come back (Price). This is good news, though apparel remains at the bottom of US manufacturing:



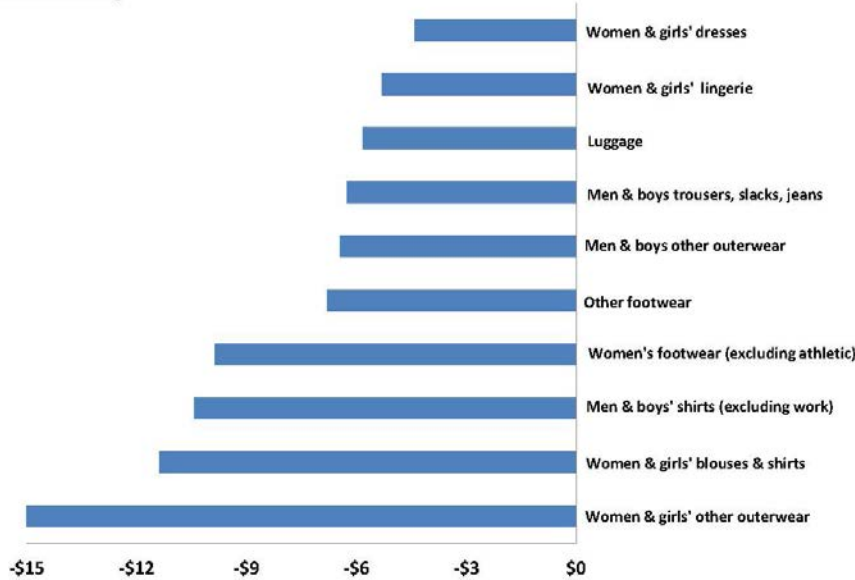
Source: “2015: What is Made in America?” US Department of Commerce (11).



Source: “2015: What is Made in America?” US Department of Commerce (4).

And a huge demand for clothing within the United States goes unsatisfied—with an equally huge trade deficit, according to “Made in America,” by the US Department of Commerce:

Figure 4. Top Ten Deficits in U.S. Apparel, Leather, and Allied Products Trade, 2012
(billions of dollars)



Source: Census Bureau, USA Trade Online

Source: “Made In America: Apparel, Leather, and Allied Products,”
US Department of Commerce (6).

It is worth quoting portions of the text accompanying this graphic (emphases ours):

- The United States imported \$117.4 billion of apparel, leather, and allied products in 2012, and exported \$6.1 billion, *resulting in a trade deficit of \$111.2 billion.*
- Consequently, the deficit in apparel, leather, and allied products production comprised 16 percent of the country’s overall manufacturing trade deficit, *second behind only computers and electronic products.*
- This large deficit is *representative of the apparel sector’s global supply chain and widespread outsourcing of apparel production to nations with lower labor costs.* In 2012, the largest source of imports of these goods was China, which accounted for 48 percent of total imports, followed by Vietnam (eight percent), Mexico (five percent), and Indonesia (five percent). In total, Asia accounted

for 78 percent of U.S. imports of apparel, leather, and allied products.

- There were *no industries in U.S. apparel, leather, and allied goods manufacturing that recorded a trade surplus in 2012.* (6)

Bieg et al. found that clothing and durable items listed above could be technically created with wool that is currently being produced within California. The Bieg et al study assessed wool production in California. Note that wool not only can be used to produce items worn close to the skin but is a remarkable material for use in shoes, bags, furniture fill, acoustic panels, and high end environmentally friendly insulation. The study’s authors acknowledged surprise that over one million pounds of fine quality wool (next to skin quality), was produced within California on an annual basis. At the time of the study, California was the largest wool producing state in the country.

Wool is fire resistant, it absorbs up to 30% of its weight in moisture—which keeps wearers cool and dry when needed, and warm and insulated when the weather dictates the need. Another key attribute is that wool is a grass fed fiber, “Fifty percent of a fleece’s weight is pure organic carbon stored in a durable, wearable, form.” (Dumfries House Conference)

What about the capacity to produce wearable or household-usable items from raw materials grown in the US?

There is a great capacity for existing U.S. textile milling systems to produce many of the value-added goods that are essential for everyday life. There is a need to both support the existing mills within the U.S. and to expand certain core competencies to enhance U.S. textile offerings. By swelling business with existing mills, we will have the necessary demand justification needed to grow, modernize, and expand our milling systems. The key initial step is to making the connections necessary between fiber producers, textile designers, and others who are searching for mills. Fibershed’s National Mill Inventory is currently utilized to make these connections between producers and makers. (See Fibershed National Mill Inventory in the References).

As we make determinations about how to further enact and ground soil-to-soil fiber systems, it is helpful to note that *80% of the world’s agriculture is in fact produced by smallholders* (International Food Research Policy Institute). We see no reason 80% of clothing and household fabrics can not be produced by smallholders. We’ll touch on this again further on in Part I.

Another region demonstrating the sophisticated integration needed for textile production via fibersheds is New England. The Southeastern Massachusetts Fiber and Textile Roundtable was held on March 7, 2017. This was a working meeting convened by Amy DuFault (interviewed in this paper as well); the Southeastern Massachusetts Agricultural

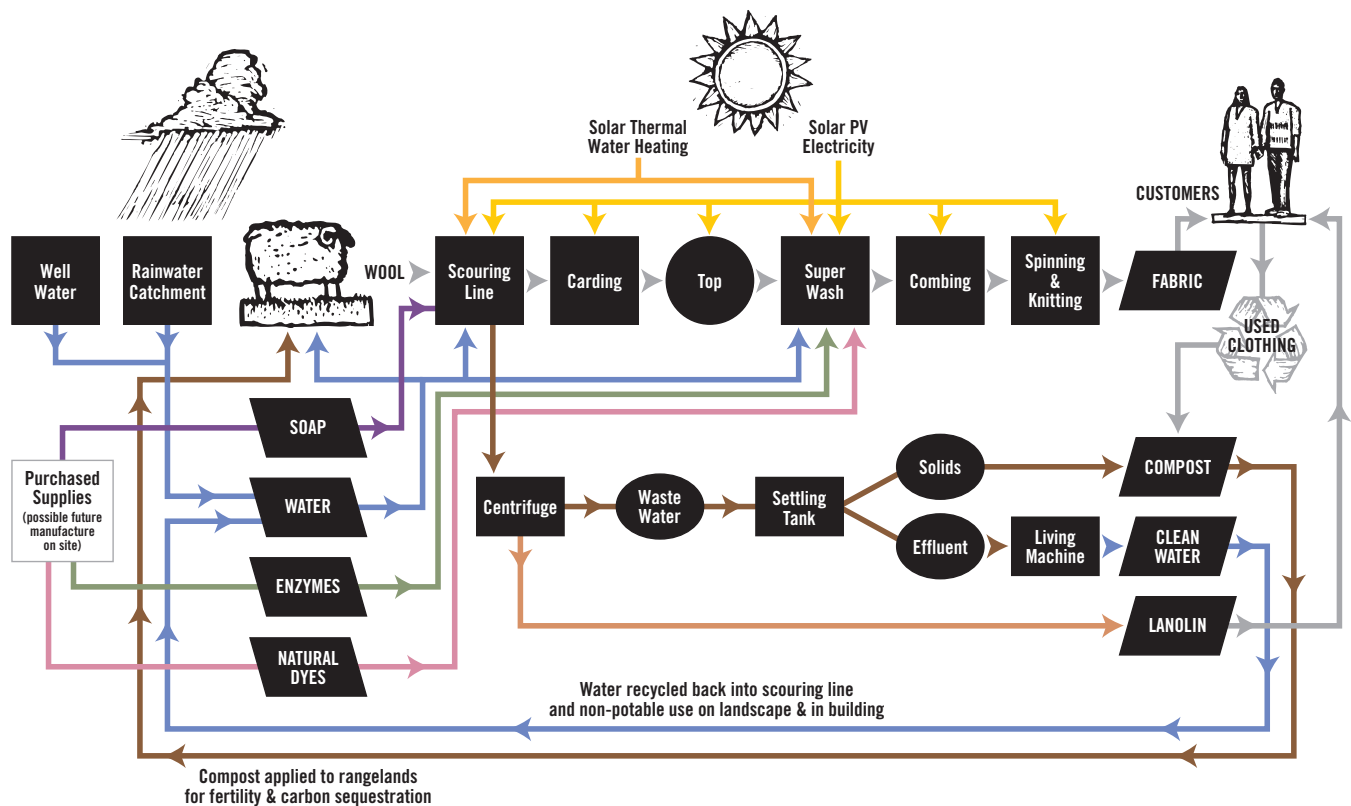
Case Study #1: A Cutting-Edge California Wool Mill

The “Fibershed Feasibility Study for a California Wool Mill” was published by the nonprofit Fibershed in February 2014. It was written by an extraordinary team of experts including Fibershed’s founder; an international consultant in the manufacture of textile-mill machinery; an ecosystems scientist specializing in land-atmosphere interactions as they impact climate change; a leader in fashion’s sustainability; a sustainable management entrepreneur; and an attorney for sustainable enterprises.

The quality of the study gives serious reason to invest in a wool mill the study proposes locating in northern California to process up to five million pounds of wool annually. California currently produces three million pounds, only .03% of which is processed (cleaned, and turned into usable yarn) in-state. The study determined that limiting factors were small when it came to capital: \$26 million needed. More significant factors were skilled labor to run the mill, and scaling up demand for local cloth, investment opportunities this paper addresses.

One of the most significant innovations of the proposed mill is its design integrating the first-ever greenhouse-gas-based “Soil to Soil” lifecycle assessment (LCA) for all future cloth and garments produced by the California Wool Mill.’ It is also important to underscore that the mill is waterless—important for many reasons, especially in California. Below is a graphic showing this lifecycle. (The study itself, “Fibershed Feasibility Study for a California Wool Mill,” by Bieg et al., is available online at the link in the References section.)

California Wool Mill Systems Workflow — Soil to Soil



Source: Bieg et al. (43). Used with permission.

Partnership (SEMAP) and its E.D. Karen Schwalbe, as well as the Island Foundation, whose program area to support sustainable agriculture in southeastern Massachusetts, Rhode Island and Maine is starting to include sustainable fiber and textiles, thanks to its program officer Sarah Kelley, interviewed for this paper and the author of “Common Threads”. Thanks to the Roundtable, 58 participants were able to meet each other (most for the first time), representing all links in the value chain needed for successful regional economic development of fibersheds: fiber producers; fiber processors; manufacturing; retail; finance and funding; researchers; designers. Outcomes from the Roundtable to date include the development of a **New England Mill Database** by Rhode Island School of Design student Emma Werowski, overseen by Fibershed as a partial response to the call for a “clearinghouse of information” by Roundtable attendees; the creation of the Southern New England Fibershed Affiliate; and a second project phase, currently in development, to create two locally sourced pilot projects in order to begin rebuilding local fiber supply chain links and developing the case for local economic development potential.

One participant was a regional nonprofit economic development corporation within the network certified by the US Small Business Association, SEED (South Eastern Economic Development) Corporation. SEED is a lender and micro-lender in Massachusetts and Rhode Island begun in 1982 that also administers a small-business technical assistance program. Executive Director Maria Gooch-Smith

answered the Roundtable’s question, “Are we ready to change demand?” for regionally produced textiles with “yes, and our role is to support this financially.” (SEMAP) Six out of the 58 voluntary participants in the Roundtable were from the finance and funding sector, including Farm Credit East, SEED, and First Citizen’s Credit Union (personal communication, Sarah Kelley).

Another participant in the Roundtable was the beyond-regional New England Alpaca Fiber Pool. NEAFP is “an alpaca fiber processing service” that “combin[es] small amounts of fiber from thousands of farms into large lots...to utilize large U.S. commercial manufacturers and take advantage of economies of scale. “By combining small amounts of fiber from thousands of farms into large lots we are able to utilize large U.S. commercial manufacturers and take advantage of economies of scale. By doing so, we can offer alpaca farms access to a wide range of professionally made products, at the lowest possible cost and risk.” In their experience, consumers are very excited to connect to the fibershed movement and the 3500 small shops and farms they work with. NEAFP is doing everything it can to stay in front of what they see as a wave, including investing in

- an email newsletter on trends sent to its network of shops and farms
- surveys to ensure they stay responsive to real demand.
- data analysis to predict needs and manage supply chain and inventory (SEMAP).

Interestingly, one of our interviewees mentioned utilizing NEAFP’s “Fiber Bank,” another game-changing NEAFP innovation. The Fiber Bank “allows farms to submit their fiber to be used towards future product orders.” Alvina Maynard of River Hill Ranch in Kentucky confirmed that this was exactly her experience, and what a boon it was.

Although meat sales remain the top income stream at River Hill Ranch (see Case Study #2), another alpaca farmer we interviewed—Rachel Boucher of Minnesota’s Rach-Al-Paca Fiber Processing—was firm that meat “is another whole business...a totally separate business.” And although she will sometimes sell lambs for (often halal) butchering by people in the Twin Cities’ increasingly ethnically and religiously diverse communities, she will not allow butchering on her farm.

So with justification, we say: true, there’s a long way to go—and a *lot* of opportunity to get where we aim—with clarity and focus guiding strategic investment—to go. There is demonstrably great opportunity for national self-sufficiency and even fiber *exporting* by investing in fibersheds.

Case Study #2: River Hill Ranch, Kentucky



Alvina Maynard (Photo by Meg Wilson Photography)

ALVINA MAYNARD of River Hill Ranch in north central Kentucky is also a grantwriter by profession, and mother of young children, who is raising alpacas “to create a lifestyle for my family so that my kids would be raised out in the country and being able to know the plants and trees and birds and the animals, so that they would appreciate it because that’s the kind of upbringing that I was blessed with. That connection with the earth, I think...is the main driving factor of why I feel so called to take care of it.” She quotes Michael Gorman, Executive Director of the Farmer Veteran Coalition: “We cannot make friends of our neighbors by damning them. The only way that we’re gonna show them that this is a better way to consider is by being successful and

being their friends and not damning them and just building community.”

She details some of the challenges of ecological fiber-farming: “There’s not an easy solution, to say the least, but I can say that since I have switched to intensive rotational grazing on my farm, you can tell the difference. You can see that the land is healthier. We haven’t sprayed in three years and I will say that the invasive species in our area are an absolute pain in the butt, and I have yet to come up with a organic solution to getting rid of them....We have wild honeysuckle vines that will overtake the pastures and choke out the grass. Of course, there’s just all kinds of weeds, but we introduced goats. We try to solve problems...as we can with other animals. We have a handful

of goats that eat the weeds that the alpacas don’t, we have chickens that scratch up the manure piles so that it interrupts the parasite lifecycles, [and] cuts down on flies.....We try and use that systems approach to our farm operation. Overall, I would say we’re at a net positive with how the farm, the soil, the land, the grass, the animals, how everything has reacted. Land, the grass, the animals, how everything has reacted.”

Alvina has a knack for integrating systems. One of her income streams is a four-day fibershed summer camp “exploring nature, adventure challenges, fiber arts, games, leadership development, scavenger hunts, emotional intelligence development, chickens, goats,

(Continued on the following page)



Alpacas at River Hill Ranch (Photo by Meg Wilson Photography)

ALPACAS, and MORE!” (River Hill Ranch). Two camp snapshots, from our interview with her: “The third day was dirt day. We scooped poop. They found out that the compost pile that they’d been climbing up and down and racing each other and digging in all week long so far, what that was made out of. It was really awesome because first they’re like, ‘Aw, that’s gross!’ Then one of the boys yelled out, ‘I’ll race you up poop mountain.’

“[D]ay four...we learned about mushrooms...we learned about trees....We learned about invasive species and they helped me pull up honeysuckle vines. That was the ultimate culmination of, ‘Okay, yep, this is where it is and...how we influence change into the future is taking these awesome little young

minds and letting them get their hands dirty.”

She says, “I envision agritourism growing to be our number one profit generator with the trend I’m experiencing.” Agritourism is only one of her “revenue streams... [which] in order of highest to lowest profit are meat sales, retail sales of finished products purchased wholesale from our fiber buyers, retail sales of handmade finished products from yarn purchased wholesale from our fiber buyers, agritourism, retail sales of handmade value-added products.... That last item is moving up now that we were awarded the USDA Value Added Producer Grant.”

One question we asked most farmer and producer interviewees was

about strategic investments they’d advise. Alvina responded, “Debt is a bad word in our house. We wanted to grow the business slowly so that we didn’t overextend ourselves. There have been a couple times where we’ve taken out a couple grand here and there...like our gift shop, we bought with a loan, but we paid it off within less than a year.” She estimates the Ranch has received \$100,000 from the State of Kentucky, \$6,000 from the Farmer Veteran Coalition, as well as the aforementioned USDA Value Added Producer grant, which provides a 1:1 match totalling \$100,000 over three years. Her grantwriting background has helped the family stay away from loans: “the Value Added producer grant was 66 pages, single-spaced when it was submitted.”

Labor matters

Economically disenfranchised communities—whether rural or urban—have at least one commonality: they lack vitality. Whether we grow up with abandoned commercial buildings, factories, and urban lots or abandoned farms, ranches, and towns, *we at the same time grow up with people around us who are ready to work and have no place to go.*

It is possible to create wealth, jobs, and economic development in regions like these. Those we interviewed creating viable farms and mills as well as handcrafted and small-scale industrially produced clothing and other household fabrics are testament to this. Practitioners doing this work merit both increased and sustained investment to achieve the impact they show us is possible. Their work illustrates that hope lives across the rural-urban divide, and that the healthiest pathways to regional economic development, jobs, and wealth arise from within communities.

“Technology is splitting jobs into smaller bits,” says Marianne Manilov, founder of the Engage Network, whom we interviewed for this report. Engage supports networks with leadership infrastructure and training, and Manilov has spent decades analyzing the interpersonal, political, and structural dimensions of change-making. Jobs have been reduced from weekly labor, to day labor, to task labor: “People do not have financial security in full-time jobs,” she says.

This is big industry’s answer to cheaper domestic labor. Leaders close manufacturing centers in towns that depend on them, and cut labor into the smallest components to lower costs. Independent contractors lose collective bargaining power and have little protection from exploitation, and corporations consolidate wealth for shareholders without investing in the communities responsible for their historical or current success.

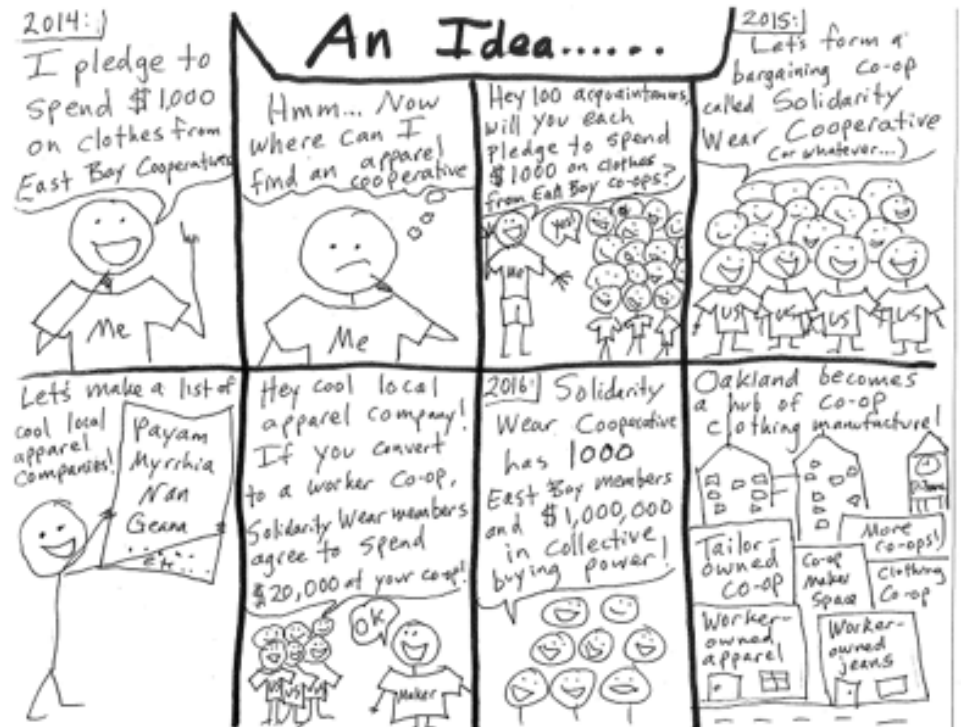
Task labor has also been praised for providing flexibility and choice in collecting income. But many advocates like Manilov are concerned about the stripping of traditional employment protections. As we build regional economies that work, we must look at ways to offer a range of options for employment and wealth building that do not strip protection and support from workers.

“A lot of the fiber industry is premised on exploiting people of color and it always has been,” says Raj Patel, an academic, journalist, and author we interviewed for this report. This is true domestically as well as internationally: “although U.S. manufacturing of textiles and apparel greatly improves the chances to create transparent supply chains...a “Made in USA” label does not guarantee safe working conditions or fair pay” (Kelley, 8). “In a sense, you couldn’t have a more wasteful industry than global fashion,

in which the environment and people are disposable,” says Patel.

Safeguards for fiber farmers are central to the Federation of Southern Cooperatives/Land Assistance Fund’s recommendations, in its “U.S. Cotton Program & Black Cotton Farmers in the United States”: keep prices high through price supports (not subsidies, which work against small- and mid-size farmers); attending to crop, community, and economic diversity; caps on both subsidies and land ownership (Pennick and Gray). The study begins with an overview showing that none of these recommendations is as radical within US agricultural policy historically as they may sound to us now.

Another pregnant possibility for protection is worker-ownership. With permission, we share this cartoon drawn by someone who has done a lot of thinking about legal structures for effective, equitable economic entities:



Source: Janelle Orsi, Sustainable Economies Law Center.

Janelle Orsi is trained as a lawyer. She co-founded the Sustainable Economies Law Center (SELC) eight years ago and remains its Executive Director. They've advised and written policies implemented in California and increasingly nationally that answer questions like (quoting Orsi), "What are the types of entity structures or business models that will keep wealth local and regenerate local economies? What are the policies that help facilitate that? How can we make those legal resources available, and train legal professionals to actually serve those communities?"

Orsi describes that "Generally, we've become a bit of an ecosystem builder in the sense that we build a lot of coalitions around certain issues, and even more recently have become a bit of an incubator. We're incubating a few new organizations, like cooperatives for farmland, for example." Janelle described a new cooperative for sheep-herding farmland SELC is working on now, H to H Cooperative. It brings Hank Herrera of New Hope Farms—a sheep farmer trying to hold on to his grazing land—together with individual stakeholders who want to buy burial plots. This partnership has immense scaling possibilities: it transforms the moribund use of fertile lands into stakeholder-shared loyalty to place while funding sustainable farming in that place, a powerful, poetic-economic example of the life-death-life cycle at work, and a national model for sustainable food and fiber production.

Speaking with Orsi doesn't give a false utopian sense that "anything is possible." It gives a instead the grounded sense that *a lot more is possible than we realize*. One key is SELC's theory of change which Orsi summed up as **"let's help small things emerge."** Although they work at a policy level, their point of view is very much directed on the ground at supporting local and regional providers of food, housing, energy, and finance. One of the key ways they

support is by removing legal barriers that privilege large-scale production and work against smallholders.

Lest we think "small" means insignificant, let's look again at the term "smallholders." According to the United Nations Food and Agricultural Organization, 80% of the world's agriculture is produced by smallholders (International Food Research Policy Institute). And thus, there is every reason, given all the other indicators covered in Part I and in this paper as a whole, that 80% of clothing and household fabrics can not be produced by smallholders.

Orsi gave two examples. One was tax incentives and the second was even simpler: removing barriers to allow value-added (processed) fiber products to be sold at farmers' markets. Currently, in many localities, only raw products are allowed.

Returning to the cartoon's subject of collective stakeholdership as an economic driver, Orsi noted that SELC is not simply in favor of small businesses, because

just helping create small local businesses is not going to address the systemic issues that are growing inequality and concentrating wealth and the ownership of businesses in the hands of a few very large companies. [That's] led us to prioritize cooperatives of all forms because generally they're not really designed to grow big, get rich and sell out. Then also to look at the land ownership that supports the production and make sure that [it is] put into some sort of structure...[helping] the economic benefits of it stay local....The land grabs are just astounding. Big corporations are the ones that are positioned to buy up this land right now....That's the longer arc, the longer range perspective that we're working with at the same time that we can continue to support small businesses.

US consumer appetite

Ryan Huston of Huston Textile in Rancho Cordova, California uses vintage looms to make high-quality fabric. He explained to us that from his perspective, "The benefits and price point of domestic fabric isn't prevalent in the United States anymore. It's not even on most people's minds."

Domestic fabric may not be on most people's minds—yet. In this paper, we point to what is possible by describing what exists....cultivating our near-future "ability to actualize multi-system-wide solutions" that help our present national crisis of economy, ecology and human relationships surpass itself into a future.

In 2012, according to the US Department of Commerce's "Export Market Report: US Textiles and Apparel 1989-2012," US "textile and apparel exports were \$22.7 billion, up 37 percent from just three years earlier." "In the last few years, brands such as L.L. Bean, Pendleton, Frye, Stetson and Woolrich have played up their made-in-America heritage, creating a fashion trend for Americana," the Los Angeles Times reports. "Perhaps the most compelling evidence of this trend is a 2013 New York Times survey, showing that 68 percent of respondents preferred products made in the United States, even if they cost more, and 63 percent believed they were of higher quality" (in Bieg et al., 20).

"Buy American" is not limited to the luxury, LOHAS (the new marketing acronym for "lifestyles of health and sustainability") or artisan consumers: "the U.S. military continues to consume upwards of 20 percent of the American wool clip for uniforms each year—making it the single largest consumer of American wool. The Berry Amendment requires that all U.S. military uniforms be made from 100 percent domestic products, protecting our wool from offshore competition" (Driggers).



Fibershed Executive Director Rebecca Burgess with Mike Lewis of Healing Ground Farm and Arnie Valdez of Rezolana Institute at Arnie's farm in Colorado, where hemp trials for fiber production and building materials are taking place (Photo by Paige Green)

Our portrait of the fashion industry is not the product of progressive imaginings or ideologies. The Bureau of Labor Statistics' "Spotlight on Statistics: Fashion" opens with this: "The industry is characterized by short product life cycles, erratic consumer demand, an abundance of product variety, and complex supply chains." Change would require a multipronged effort where we confront our society's devaluation of manual labor and manual laborers, craftsmanship and artisanal skills.

Thinking regionally = thinking big-picture

The fashion and food sectors are examples of many industries that have encouraged the US consumer appetite for cheap, low quality goods that disguise the ecological and social cost of creating such goods. Investments in regional production chains support artisans creating jobs for their communities, rebuilds a market for craftsman items, and provides an example of what livelihoods can look like.

Few are as articulate about the details of what regional economic developments will require of investors, consumers and fiber producers as interviewee Mike Lewis at Healing Ground Farms. Located in Rockcastle County, Kentucky, his farm trains

veterans in sustainable- loop farming of organic, pasture-raised poultry and pork and organic produce. He is teaching both land practices and an investment strategy that allow people to build wealth of their own as well as within their small communities:

The challenge is that we have to compete with these outside markets. With hemp, we're creating a high-value product. 82% of our citizens live below the poverty line. We're using the weight of a larger-scale company to build a local market.

Rural development spends millions of dollars on incentives, tax breaks, and zero interest loans. But no one wants to come here. Why isn't there an investment strategy that allows people to build on their own?

We're trying to use the success we've had with industrial hemp to teach people skills. If we're going to create products, it needs to be used with strategies that allow people to build wealth, and not make eight to ten dollars an hour.... Most of the local businesses are call centers, etc. And then they leave in four to five years, because there's an industry in getting companies tax breaks by having them move every few years. People have to make enough money to warrant staying here. The main jobs in rural communities are hospitals and schools. These are...not wealth building opportunities. People should make enough to live and not be stressed out about it.

Mike is not only concerned with individual wealth-building, but with changing the equation for communities and the larger textile market:

It's hard to create high-value hands on jobs outside of artisanal markets because of the way that we value

commodities. And the way we make purchases. Somehow, replacing a \$20 pair of jeans in a year is better than buying a \$60 pair of jeans that will last ten years.

*I want to show the hard work on the farm, so people can see that they should be paying people. How do you do that without painting a picture that allows people to think about land?... This disconnect is based on our current economic system. Land is an externality, and anything that happens to it is an unintended consequence.... My work is creating a way for folks to make money, keep it regional, and help show that there is long-term value in preserving land and working it. **I'm visualizing this regional supply chain system that can provide for food production and value of land and workers.***

But toppling the giant apparel industry in lieu of an equitable system requires innovation, says Lynda Grose. And

she demonstrates what “the ability to actualize multi-system-wide solutions” (as we quoted her writing in our Introduction) actually takes in terms of unsparing critical questioning of received wisdom.

A professor, designer, and researcher in sustainability and fashion, Grose cofounded ESPRIT's e-collection, the first ecologically responsible clothing line developed by a major corporation—in 1992. With cotton production on the decline, she says, polyester is slated to become 80 percent of our consumption. Could regional farmers use wool production as a pathway to economic development? “This is about infrastructure, lifestyles, and advertising behind these massive fibers. To topple them takes all kinds of innovation before things topple and shift. Can Fibershed's work really leverage?”

As you can see, Grose asked us harder questions than we asked her. She continued:

*[The] Better Cotton Initiative (BCI) has a progressive standard instead of a static standard [like the organic standard]. You can't say that this is a “BCI” garment, but you can say you support BCI. You can buy bales of fiber, and they keep track of how it's being used all the way through to the spinning mill. It's like carbon trading. They describe it as a bank account. It's 18% of the global cotton market, [whereas] organic is 1%. We thought organic was the tool, but it was taken away when people went overseas. Organic was a hammer to nail in something that was already in. With sustainability, we need a number of tools, not a hammer. **Even within the 1%, how much change is actually happening? When you hold on to organic as an ideology, it hinders other tools that might be more effective.***



The Kentucky sheep farm of Kathy Meyer (Photo by Meg Wilson Photography)

Another thinker challenging received wisdom is Ed Crowley, who grew up farming in Missouri and entered corporate America swearing he'd "never milk again." He's interested in opening his region's first wool mill in decades, inspired by "the wool value chain":

.... Kentucky actually used to be a huge wool-producing state. Believe it or not we actually had more sheep per acre than anywhere else east of the Mississippi....Louisville [Kentucky], as late as [the] 1930s or 1940s had seven major wool processing mills and it produced something like six or seven million pairs of wool jeans a year.

One of the things we've seen is...whether it's buying wool to resell to crafters et cetera or clothing manufacturers [they] want wool...it's a wonderful, wonderful fiber and it's growing in demand. [But] with a few exceptions, almost all of the wool clothing that's done in the US is actually from Australian wool...milled in China and shipped here....we've actually seen it's created this big gap in the market and it's really holding back the industry....you've got this natural fiber product, you've got demand from the crafting community, from people that want to spin their own fibers from the clothing manufacturers here in the US but you can't get the wool processed....We have the largest wool products retailer of yarn and other, not finished products but wool materials and fiber materials. The Woolery here, gosh only 20 miles from our house is in Frankfurt, Kentucky, 95% of their product comes from out-of-state and some amount of it from overseas because they can't get it here.

He explained the economics of value-added fiber production:

...if I'm producing wool [from] even Rambouillet or my sheep, which are very high quality wool, if I do a really great job of marketing it online...I might get \$18 or \$20 a pound for raw wool. Now if I don't have a really high quality wool, I probably have to sell it to

a wholesale broker in which case I get a \$1 to \$2 a pound. It costs me \$5 to \$20 a sheep to have them sheared....any sheep will only produce 5 to 10 pounds per sheep....[If] you start doing the math you see that we actually lose money on the shearing.

[But] if I'm able to take that wool that I produce, let's say just off one of my Rambouillets, [and] on average I sell it for \$10 on the internet per pound. My sheep produces 10 pounds of wool right so that's \$100. Well that sounds pretty good, by the time you get into feed and processing costs et cetera you're making a little bit of money but it's certainly nothing to write home about.

But what is something to write home about is what happens when a regional mill that can return smaller orders faster and more cheaply turns raw "greasy" wool into a value-added product:

If I could get that spun into just rovings—in other words something that a spinner would take and create finer fiber out of—I could double the amount of value in that wool. If I take it all the way to high-quality yarn, I can get up to \$80 to \$100 a pound for that yarn. So all of a sudden you see the value, the economic value of that sheep goes up dramatically but again if I have to ship it off, if I can't get it processed for a year or months, it doesn't work.

Crowley's Mill Business Plan was so compelling and gives so much useful Kentucky regional data in contrast and comparably to the California Mill Study cited in this paper that we received Crowley's permission to share it in our Appendix.

It becomes not so much visionary as *obvious* that investing in fibersheds makes sound economic sense. It becomes clear that investigating and then investing in a fibershed's missing parts makes **a much more valuable whole than the sum of those parts.**

Changing education, work, and the narrative about both

We must redefine the way we perceive blue-collar work. Our nation's ability to thrive depends on our willingness to evolve the narrative that claims blue-collar jobs demand less skill, deserve lower pay, and are easier to dispose of when an industry experiences technological change.

Mike Lewis of Healing Ground Farms quoted above sees changing this narrative as a powerful piece of his work:

We gotta make it really sexy. There's a prejudice and pre-judgments about what it means to be a farmer. I'm automatically a hippie if I'm an organic farmer (especially hemp). We have to tell stories. People are...media-sensitive. We have to start telling stories that tell the courage of these "rural hicks." The only way we do that is by telling stories that break the current image. We have to show people the value of what it means to be a farmer....My job is a story-teller and connect people back to what's been removed from them.

Dan DiSanto is an award-winning pattern maker whose work spans decades and includes Levi's and The North Face. He was a member of the "Grow Your Jeans" team sponsored by Fibershed. His years in the industry, and deep partnership with Fibershed have formed his critical thinking about the importance of stories as fibersheds emerge as economic drivers:

"Fibershed is doing great stuff, but you go on the website and you see the carrots growing. Yawn. They've got to get something where it's the cool kids wearing the great clothes, eating the carrot cake, while in the cool place." He knows all about cool and not-cool:

Before computers, we were doing patterning. Then those patterns became Excel spreadsheets on computers, sent back and forth overseas, and very few

people in the production of clothing knew how to use a needle and thread anymore. It wasn't about your skill, it was about how fast you were on a computer. All of a sudden, you could be promoted because you knew everything on a computer and didn't have a craft bone in your body....young folks would be fast on the computer, but couldn't put a pin in during a fitting.

But with vintage denim, we have craftsmanship coming back. When I went to The North Face, there were all these guys who knew about sports, and they wanted to learn how to sew. It woke me up. I got kicked out of tenth grade for wanting to sew. Now, ...hipsters are wanting to learn to sew. These waves are rather quick. Now I'm at the place where the craftsmanship is coming back, but the big companies are seeing it too.

We interviewed Anthony Flaccavento, President of Sequestering Carbon, Accelerating Local Economies (SCALE). He also speaks of the importance of changing our stories

about manual labor : “The hope would be that we elevate the importance of working with your body versus working with your head. We’ve denigrated that kind of work for a couple of generations.” But he’s frank about the counterbalancing problem—and its potentially economic solution: “rural people must overcome the sense that they’re the only ones that are making an honest living. There’s a sense that people in urban areas are doing bullshit work. If the market relationships become tighter, then maybe we don’t have to do a whole lot more to overcome the divide.”

Ines Polonius, CEO of Communities Unlimited, whom we interviewed, also touched on the importance of how we see manual labor: “We have a real opportunity to rebuild blue collar. But as long as blue collar equates to ‘I couldn’t do a white-collar job,’ we won’t rebuild.” She points out that, “We’re spending all this money competing for manufacturing. But manufacturing is robots and designers, and those designers are independent contracts...

It cuts out the blue collar labor....Very little is now created in community.” She also locates (pun intended) the solution in smaller scale, multi-system-wide thinking:

I would love to see locally owned job shops. Just like this designer [who] is designing for multiple manufacturers, we have small shops of specialization, locally owned business who farm out their specializations to manufacturing centers.

The notion of “college for everyone” helped create a stigma against the capabilities of blue-collar workers, says Tomas Duran of Concerned Capital, whom we interviewed as a pioneer in the transition of ownership of small manufacturing and distribution businesses to save jobs and strengthen communities. “Blue-collar workers of the future will have to understand science, math, and computers,” says Duran. “Manufacturing is about changing something from one form to another, then assembling. It’s not just pushing a button. The more kids are encouraged to do critical thinking



Designer Dan DiSanto in his studio, at work on a regionally-grown-and-sewn denim jean project (Photo by Paige Green)

and understand problem-solving, the better. STEAM (science, technology, engineering, arts, and mathematics) education is huge.”

“I assumed blue-collar jobs were becoming less relevant,” confessed Pam Chaloult of Business Alliance for Local Living Economies (BALLE), when we interviewed her. “But I learned that it’s becoming one of the fastest-growing sectors. We’re re-defining it as specialized workers that have expertise in certain areas. “She hopes for a future where people drive technology that enhances livelihoods, instead of one where technology displaces human beings.

Duran reinforced this: “Even when machines and automation increases, assembly, finishing and troubleshooting will always benefit from a human perspective.” he says. He notes that excellent and efficient manufacturers are good problem solvers, and that it takes years of lived experience to do it well.

“I don’t think technology will do away with jobs. People have been talking about that since the ’50s and ’60s. Instead, work hours increased and job conditions got poorer,” says interviewee Steve Dubb, formerly of the Democracy Collaborative. “If you go to other countries, there’s plenty of manufacturing going on. I think there will be less need for builders of things because less people will be needed to build more things. But there will always be things for people to do—childcare, elder care, teaching, etc. He also talked about our narrative when it comes to working with our hands—and how it has already changed elsewhere: “The jobs we consider ‘blue collar’ are not stuck in space and time. In the US, a doctor is a highly paid position. In Cuba, you get paid more to be a tour guide than a doctor. That boundary line changes over time, and is not fixed. It’s always shifting. Before, manufacturers were the ‘highly skilled’ jobs.”

Economic development as environmentalism

Relocalizing fabric production, says Michael Cox, formerly of HUB, can turn economic drives into environmental improvements: “I would love to see massive sustainability projects take on climate mitigation,” he says. “Planting a billion trees, or reversing ocean acidification and species extinction. It could put millions of people to work.”

A local, regenerative supply chain could take shape any many forms. Amy DuFault, of Brooklyn Fashion + Design Accelerator asks, “Why hasn’t someone claimed to be the textile recycling city yet?” she asks. ‘Maybe that becomes a new “harvest”? With waste, we can look at harvesting in different ways.’

Organizations like the Kresge Foundation invest in people who think in multi-system-wide ways about work, integrating resources, says Shamar Bibbins, Program Officer for Environment at Kresge, whom we interviewed. In her vision of regional economic development, communities would have control over their resources, and job creation. She cites cooperative models like PUSH Buffalo, a membership-based sustainable housing organization, and the Evergreen Cooperatives, which focuses on grassroots economic development. “But things feel exceptional when they shouldn’t,” she says. “I’m not sure why we’re still operating from a one-off place when we know some of the things that do work.”

Biomimicry urges us to look to nature when we design, because nature has already designed and tested the best solutions. Interviewee Beth Rattner of the Biomimicry Institute believes that a regenerative approach to how we design our cities, buildings, and everyday materials is also a way economic development can be regenerative: “Current economic development pits farmers against

environmentalists. There’s a way we can accomplish the goals of both. There’s an answer for how to do both that’s been tested for millions of years Humans are still going to want our conveniences. But we don’t have a “stuff” problem, we have a design problem...nature has a restricted palette, but it can combine a few materials in infinite ways, it’s highly biodegradable and effective. We will mimic that.”

From the point of view of these practitioners, we don’t have a jobs problem—we have a design problem and a mindset problem. Updated, cutting-edge education, revised narratives about blue-collar jobs and the importance of work that feeds and clothes us, new technologies, focusing on genuine regionally driven, regionally planned and invested-in economic development, plus harvesting the solutions that come when we refuse to pit environment against economics work together to create thriving economies that are both place-based and replicable. Right now.

PART 2:

Natural Resource Management



Compost being spread on an alfalfa field for increased soil carbon sequestration. (Photo by Paige Green)

OUR AMERICAN for convenience is costly, and that cost has become prohibitive. As touched on at the start of the last section, fast fashion has many casualties. We explored some of the human and economic casualties in the last section, laying the groundwork for an understanding that regional economic development—especially through fibersheds—can be environmentalism, rejecting the need for environmental harm done by most present-day large-scale fiber cultivation, processing and production.

Environmentalism as economic development

“You can’t be economically sustainable if you’re not environmentally sustainable.....**If we trash our pastures, we’re not going to have anything to feed our animals.**” There was no difference between environmentalism and economics to Rachel Boucher of Rach-Al-Paca Fiber Processing, quoted in Part 1 regarding butchering of animals raised for fiber. She adds that in Minnesota, “[w]e already have to feed hay six months of the year. So for us, conserving our pastures is a primary concern.”

As noted earlier, in the US, economic interests are often positioned oppositionally to environmental ones. We began cultivating a “multi-systems-wide view” of

Case Study #3: Pacific Northwest Fibershed

SHANNON WELSH of Pacific Northwest Fibershed is no stranger to complexity. Our interview with her delved deeply into ecological, biochemical, economic, and even historical detail about the cultivation of flax, the fiber which produces the textile linen.

Her ability to address detail may be because she wears many hats, apparently all at the same time: “I’m an apparel designer in Portland and I’ve worked...with independent designers [and] large apparel brands....I also noticed a lot of the designers I was working with were wanted to source regionally. As we started to delve into sourcing, we realized there’s a lot of holes in our community, but there’s also a lot going on in the Pacific Northwest.

“Through my research and also the farmers’ I was meeting, [I found] flax was a very large economy in Oregon up until..the end of the 40s. [Oregon] had 14 processing mills and 18,000 acres of fiber flax [as contrasted with edible oilseed flax] growing in the mid-40s here. There [were a lot of us asking] “What happened? Where did it go?”....I’ve been working with Oregon State University and community of farmers and producers to try to get that crop going again in our region, and...learning about the agronomics practices, looking at research from history. We’ve developed a pretty large community of people that are growing fiber flax [and] researching it.”

Welsh’s interview made us see the value of investing in partnerships with universities—specifically universities with agricultural research programs. These are often “land grant” universities chartered in the 1800s by the Morrill Acts within each state university system.



Shannon Welsh, founder of the Pacific Northwest Fibershed

The environmental economics of the Pacific Northwest fibershed’s flax clearly hinge on Welsh’s attention to detail. “Oregon is a huge grass seed state. That’s kind of our main crop. Grass farmers are finding that adding flax into that is working well with their rotations. It’s a plant that grows easily here. It doesn’t usually need much irrigation, if any, if you time it right when you plant.....It grows in about 100 days, so it’s a quick crop. Once you pull it out, you have a totally clean field. The biggest challenge with it is....[y]ou need to pull it from the roots. The fiber goes all the way down to about an inch above the roots. Currently, the only option we have is hand-pulling, so that’s what’s made fiber flax a tough crop to bring back. There’s been quite a few attempts. O[regon] S[tate] U[niversity]’s done research and there’s been a lot of attempts over the last few decades to get it growing again, but the big challenges are in the harvesting of it and then the retting process.”

Just as with Rachel Boucher in Minnesota, environmental concerns were simply an economic assumption to be factored into production—for example, when it came to retting. Retting is “a microbial process, an enzymatic process that breaks the stuff around the fibers inside the stalk....so that you can...then get to the fiber. “It helps that enzymatic process when you lay it in the field [but] [t]here’s two ways you can do it. There’s field retting, which is where you pull it and lay it out into the field for a few days, and then you flip the crop on the other side, lay it for a few days. And then, usually by then it’s kind of broken down. There’s been companies and different groups that have tried to come up with enzymatic processes that you could treat it with to speed that up, that process, for production. We’re leaning more towards just working with field retting. That’s what they’re doing in Belgium and France and some of the areas where the highest quality fiber flax comes

(Continued on the following page)



Processing flax by hand (Photo courtesy of Pacific Northwest Fibershed)

from. But there's also what we used to do historically here was pond retting, which is basically you take a giant container or vat of water and then you submerge the fiber in that.... I think the one area where we would run into problems with the large-scale pond retting is the water, all the water that that takes.... Our understanding was there's enough going on enzymatically [with pond retting] where you wouldn't want to just then release [the water] back [into the ecosystem].

Welsh's "region" stretches as far as Europe for more than just models, inspiration and occasionally, aspirations at competition. "We have zero harvesting machinery left in North America to harvest fiber flax because of the unique way it has to be pulled and different aspects of the harvesting, so that's a huge problem. And then, also processing it to the yarn stage. We don't have any facilities that can fully process flax fibers. There's groups trying to get those going. So having equipment is probably the largest hindrance.... To start, we'd want to meet the needs of small-scale farms, which means smaller equipment. Probably for around a half-million we could get the harvesting equipment we need, and then small-scale processing machinery. But over time, as there's more growing

and more being processed, there would probably be a need to scale up. And so, I would say half-million to a million [dollars] would be what would get flax on the map again in the Northwest." They are currently exploring using machinery imported directly from people they have built relationships who are producing the fine-quality linens for which Belgium and France are known.

Welsh's quest to renew her region's fibershed economy has led her into other, equally unusual relationships, locating allied fiber flax communities in Chico, California; the Three Rivers Fibershed in Minnesota, and also in Nova Scotia, where Taproot Fiber Lab is developing small-scale flax processing machines. Patagonia is another ally; Pacific Northwest Fibershed has received a grant from the industry leader for their work.

Allies can appear unexpectedly when we think in terms of relationships: "[T]he byproducts of flax are becoming in demand, which was a bit of a surprise to us.... One plastics company we talked to said they've been trying to find domestic flax for two years and they haven't found any. They.... don't want to be getting it from another country and that's been all they can do.... Paper companies are looking for flax and

wondering, "Why isn't it growing?" We are seeing more and more of a demand for those things.

Even more relationships were revealed as we explored Welsh's passion for details: "The one machine we've found here is in a museum.... It was actually developed at Oregon State in the 40s, a flax-puller. We had an agreement with the museum to restore that and get it working so that we could use it for our own crop. The more we looked into what it would take to get that machine going and the cost, we definitely started to kind of shift our [thinking].... There has been talk about building machinery or using existing machinery [from Europe] and... ways we could change the machinery to get it to do what we need. We definitely are talking to machinists..."

Relationships, it seems, are central to all fibersheds' success: "Our vision has always been to work with as many people as we can, pull the community in, get the hand workers a part of it, get the small farms—not just the large farms, and not using just that industrial vision but more of a community vision."

fibersheds by tackling economic considerations first, because they're usually considered the hard stuff, the stuff that trumps "soft" considerations like environment and climate.

Soft? All Earthly economics starts in soil. Meeting basic human needs through a soil to soil approach is a way of guaranteeing economic sustainability. Far from being a casualty of economic considerations, environmental health can be a creative, lucrative guiding principle for fibershed businesses from "sheep to shawl."

Sound management of natural resources is the basis of fibersheds' shift in how we grow, harvest, and manufacture textiles. Matt Gilbert, a forester in California's Mendocino County cautions that creating a workable landscape isn't possible if all the decision makers live in cities and don't understand environmental rhythms. Gilbert wants to maximize the landscape sustainably, and is not afraid to say he wants to do so at a profit. "For whatever reason, there's a stigma around making money from the landscape," he says. "It's fairly frustrating. The point is to manage the landscape well, make money to pay for the expenses, and make a profit to pay for workers." He argues that there are many for-profits doing work like this already. "We just need to provide a social environment for these types of entities to operate and thrive."

In Mendocino County, Gilbert sees that *oversimplification* can stifle progress. Nature is simple—not complicated—but complex. "Understanding and appreciating complexity is key to forest management," he says—and to fibershed's ability to revive regional economic development. This is another example of biomimicry, taking a page from nature to help us develop multi-system-wide understandings that mean investments we make in fibershed's people, businesses, and nonprofits do not pit economics, environment, or people against each other.

Increasing environmental degradation and increasingly economically depressed communities both call us to explore solutions take both into consideration. Solutions we advocate are intelligently complexified models mimicking nature by factoring in relevant local and regional detail and advised by people most affected by their implementation. These are often also the people with most "on-the-ground" knowledge of the processes involved. This is a "multi-system wide" approach that uses ecosystem management to care for a landscape, create jobs and make a profit.

Natural resource management is tech-savvy

At SCALE, Flaccavento has noticed that technology and natural resource management can be complementary, while educating the community served. The organization has had a longtime presence at farmer's markets. But only recently did they create a customer email list that reaches about 100 families. "Every week we send an update that says what we'll be bringing to market," he says. "We embed weather and soil conditions. My wife posts that on Facebook with pictures of the farm. [It's] a low-tech example of the market relationship with a bit more about the backstory," says Flaccavento. "Folks should know what we're struggling with and why. A strict market relationship isn't as fruitful. But story builds conscious consumers."

Many farming operations have employed technology to create efficiency. We interviewed Michael Dimock of Roots of Change, a California organization dedicated to healthy and equitable food systems. He says that farms use sensors in their fields to capture data they wouldn't otherwise have, adding, "With the right kinds of technologies we could produce prices that would allow us to get out of other countries for labor and materials."

It's important to highlight and invest in farmers and producers, as well as entrepreneurs and advocates who show that people who work with the land value ecology, human connection, regenerative principles *and* savvy use of technology. We can have a values-driven approach to technology that's good for both people and planet.

Redesigning structures from the ground up

At Healing Ground Farms, Mike Lewis envisions a regional supply chain that can produce hemp and food, bring greater value to the land, and increase wages for workers. His challenge is competing with outside markets. A robust regional economy can't exist without effective resource management, and that requires a solid infrastructure.

Naomi Starkman, co-founder and editor-in-chief of *Civil Eats*, a news source publishing stories about the American food system, says that often, people with good ideas and intentions don't have access to fundamental elements of a working infrastructure, such as refrigeration and transportation. They "need the ability to move food from farms to processors," she says.

Peter Byck of Carbon Nation wants to see more people grow their own food. "I would hope [farming] would become easier, and help young people get a foothold. There's a push toward our natural resources. I'm seeing food production that makes our land better. If we can do that at scale, we solve an enormous amount of problems."

Like Lewis' hemp creating a way for folks to make money: if communities can keep their processes regional, they not only build wealth, but demonstrate that there is long-term value in preserving land *by* working it. ***Regionalizing our textile supply chains can change people's lives for generations as well as help protect the Earth.***

To reconnect to our ecosystem's natural cycles, says Kevin Bayuk of LIFT Economy, we must do nothing less than change the economy at large. "Unfortunately, the cost of exploiting and destroying tends to be less than the cost of regenerating," he says. We have to demonstrate the efficacy and model what's possible, as we do in this paper's examples of farmers and producers who show enormous promise for a re-regionalized fiber future. And then, as Bayuk says, "we have to demonstrate how to achieve scale." Investments grounded in the wisdom of multi-system-wide understanding are key to this.

In his interview, Bayuk touched on small-scale experiments he sees happening. For example, the third-generation Chassin Family Farm on the Sierra Steppe practices land management influenced by permaculture. "They graze their sheep regeneratively. They practice open wildlife corridor management and produce year-round crops. The Chassin farm models the type of resource management that could exist throughout the country."

Rural communities that have been most devastated by a loss of natural resources—due to overgrazing, river bed destruction, monoculture farming—are often the ones who most realize the value of smart regional economic development of regional ecosystems. "So many things come out of natural landscapes," says Amy DuFault of the Brooklyn Design Accelerators. "Food and fiber are not as divorced as we think they are, and there are incredible business opportunities that regenerate land."

Just like the need Starkman describes for infrastructures that "move food from farms to processors," Diane Ives, advisor at the Kendeda Fund, suggested when we interviewed her "creating value in an urban setting for this [multi-system-wide] approach to work." An example she gave: in Portland, Oregon, Sustainable Northwest works with hard-hit rural

communities. "They created a business cooperative that pulls in smaller scale forestry experts who mill timber sustainably. Sustainable Northwest created a cooperative system that gets products from these rural-based entrepreneurs to urban markets that value artisanal craftsmanship."

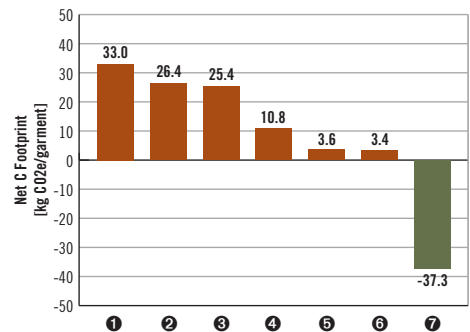
Advocates have long highlighted structural deficiencies in our food system, and ways that such practices lead to degraded soil, poor animal welfare, and low-paying jobs. As Kelley (2017) demonstrates to nonprofit funders, we can learn many useful lessons as investors in fibersheds from the sustainable food movement. In particular, we hope we are demonstrating that seeing the economic development of regional fibersheds as natural resource management does not close off but opens doorways for new ideas, allies, and investment to increase the pace of change.

Natural resource management as climate adaptation and mitigation

Our three-year streak of the hottest years on record shows no sign of slowing. As extreme weather events become the norm and landscapes adjust to new seasons, fibersheds as environmentalism gives us a whole set of new ideas for climate adaptation and mitigation.

Although economically, the biggest potential shift for weaver Ryan Huston would be the return of manufacturing to the United States, he adds that this shift includes "fair wages and proper use of the land." By "proper," *Huston means sustainable land use that contributes to the environment instead of just taking from it.* How is that possible? In fact, production that *helps heal climate* is no pipe dream, as you can see from this study.

Life Cycle Assessment of Fibershed & Conventional Fabric Production



- 1 Conventional Realistic:**
CA grid-derived energy, slightly higher C footprint relative to other cases due to loss in soil C, synthetic fertilizer use, higher transportation costs
- 2 Conventional Optimistic:**
CA grid-derived energy, but no increase in soil C
- 3 Fibershed Neutral Soil:**
geothermal-derived energy, but no increase in soil C
- 4 Fibershed Conservative:**
geothermal-derived energy, good land management increases soil C at a more conservative rate than Case7
- 5 Fibershed Realistic:**
geothermal-derived energy, conservative compost credit, good land management increases soil C at a more conservative rate than Case7
- 6 Fibershed Possible:**
solar-derived energy, conservative compost credit, good land management increases soil C at a more conservative rate than Case7
- 7 Fibershed Optimistic:**
solar-derived energy, optimistic compost credit, good land management increases soil C at optimistic rate, minor reductions in C footprint relative to other cases at several steps (transportation distances, commuter mfg, animal emissions, air-dried clothes, etc.)

Life Cycle Assessment of Fibershed & Conventional Fabric Production. Source: Dr. Marcia DeLonge, Silver Lab, U.C. Berkeley and Mill Feasibility Study Team.

Source: Beig et al. (52)

Case Study #4: Lani's Lana Fine Rambouillet Wool, California

RADICAL CHANGE in fiber is not only being studied, it's being implemented. Lani's Lana is a star example within Fibershed's network in California (and beyond). Lani Estill's wool business is delimited by geography, not state lines. "It's all based around the wool that we... harvest off of our sheep herd that runs...from Nevada up into the Warner Mountains of California throughout a year's time and they circle back. They do the same rotation every year. They have fine Rambouillet wool and that is often in the marketplace referred to as Merino, but it is definitely the American Merino. Rambouillet has got a lot of crimp to it, it's really nice and really fun to work with."

She describes her role in Fibershed's 2016 "Community Supported Cloth" project, modeled on sustainable agriculture's solution for small farmers, "Community Supported Agriculture" (CSAs): "They bought yarn from me, and we designed the yarn together and the cloth together, but they had Krystal Moody as the textile expert engineer come on board specifically for the cloth. They worked with Leslie with Tango Blue....Leslie helped designed the cloth and then Ryan Huston and Huston Textiles [interviewed in this paper] wove it. The community piece comes in because we asked [the Community Supported Cloth stakeholders] to beta test and purchase before they'd ever seen the cloth....and they did. We sold it out completely."

The wool stayed in the US for its entire transformation into cloth, but was not able to be milled in the region—not yet. We interviewed Lani about the climate impact of her growing process, and the cloth-production process.



Lani Estill checks the compost at Bare Ranch. (Photo by Paige Green)

The process "climate-wise is definitely regional because it ties directly back to the ranch and the carbon conservation...carbon sequestration awareness in projects that we're doing on the ranch. Then, throughout the supply chain, we tried to do the best we could with using [environmentally] certified [wool-processing] plants and people that were aware of their environmental footprint."

Estill Ranch is not just fully verified as a "climate-beneficial" ranch by Fibershed. According to the Estill Ranch website, the Ranch is working with the Carbon Cycle Institute and the Modoc, California regional office of the USDA Natural Resources Conservation Service to develop a Carbon Farm Plan that puts the Ranch within reach of the green bar shown on the chart in this section—the "fibershed optimal" point of carbon sequestration.

For example, one practice that makes real the soil to soil approach we presented in the Introduction is "composting, so...all the manure from the cattle gets combined with any leftover hay or wood chips or anything that we're producing on the ranch that's compostable. It all gets composted and applied back to the soil.

"We've got project outlines that we're doing that will help draw down carbon as we implement each one." Another of the Ranch's sequestration practices include a shelter belt of "four miles of trees that we're planting with an understory of pollinators....we're gonna put in as many dye plants... as we can, so it's not gonna be just a monoculture of ponderosa pine." As can be imagined in this near-desert geography, water is crucial. Another climate-beneficial strategy is "a new lower water usage package, sprinkler package on our pivot. That was about \$15,000....It's like four feet off and five feet off the ground, down to about two feet off the ground. The evaporation and the efficiency of the water applied to the crops is improved dramatically."

Projects thus far have each cost less than \$30,000. Estill notes that a fencing project is one of her desideratum, at \$200,000 a more significant investment, so Ranch "pastures can be smaller, we can graze in a more intensive faster fashion. Another strategic investment Estill mentioned was a mill serving regional fiber producers that is being created—it turns out, by another of our interviewees, Mendocino County forester Matt Gilbert.

As Fibershed's "Carbon Farming" page puts it, succinctly: "Carbon Farming has the potential to restore balance within the carbon cycle in a way that will ameliorate climate change, build resilience to drought and increase our agricultural productivity naturally." The page cites the Rodale Institute's finding that "Current international data from farming systems and pasture trials around the globe show that **we could sequester more than 100% of current annual CO2 emissions with a switch to widely available and inexpensive organic management practices, which we term 'regenerative organic agriculture.'**"

The Fair World Project is an independent project of the Organic Consumers Association. It promotes fair trade as part of profit-making. Issue 15 (Fall 2017/Winter 2018) of its publication *For a Better World* focused on regeneration, and Fibershed's "soil-to-soil fashion revolution" made the cover and was one of just two featured stories (Canning). The cover story of the most recent issue of Earthjustice's (donor-rewarding) quarterly magazine is "The Secret's in the Soil: Farming's Big Role in Fixing Climate." Both of these are harbingers of a transition

interviewee May Boeve of 350.org reflects on: "it's been a shift" that she is "starting to hear more discussion about soil and soil sequestration... The reason for this is the split between conservation and climate....Thankfully, there are practitioners who actually deal with this," like many of those profiled in this paper.

Thinking regionally helps ensure that climate resiliency has economic strategies that actually work. Boeve says, "If the climate movement is seen as advocating for this, we could get around being seen as insensitive to workers. " "Climate change is going to make 'smart' communities more important," says Michael Dimock of Roots of Change. He asserts the importance of organizations like Fibershed, because "places that have "-sheds" are going to be positioned well." Although "-sheds" are everywhere, not all sheds are currently created equal. This paper helps us think about and invest in strategies that ensure that in the future, they are. The fact is, as shown in Part 2, regional "-sheds" create ecosystem-respecting businesses that link structurally to regional supply chains and deeply better regional livelihoods.

Sarah Shanley Hope of the Solutions Project, an organization working toward a 100-percent renewable energy future, says that regional economic development is not just climate work, but climate *justice* work:

Climate change will localize everything....as the crisis continues, there are going to be opportunities in local areas where connection infrastructure is stronger....We're investing in those locally rooted solutions, leaders and relationships with an eye toward rebuilding that social and cultural bedrock for humanity. Our vision is trying to influence...dynamics...in ways that center local needs and experiences and the safety/health/wealth of frontlines people of color. The strategic reason for that is thinking about our population. When these things come to a head, we will be a majority people of color country.

And thus multi-system-wide thinking brings us to Part 3—how fibersheds regenerate human relationships.

PART 3: Bridging Cultural Divides



Shepherdess Hazel Flett of Bodega Pastures and artisan Vinothini Satchithanathan (Photos by Paige Green)

FIBERSHEDS regenerate human relationships. We can bridge cultural divides through regional economic development that is ecosystem-embedded and -protecting. This might not be the first tool we'd reach for, and if (before we read this paper), we heard about a program to restore dialogue and relationship through textile production and consumption, we might even have laughed. But it turns out that fibersheds are “warm and fuzzy” in more ways than one.

The regenerative power of affection

The social science on bridging divides is in its infancy but appears to indicate that it is more effective to bridge divides by not focusing directly on the divide, but on things that bring people together. Having tasks or goals in common are termed having a “superordinate” goal in *The Psychology of Prejudice*, now in its 3rd edition (Nelson). We know from our own experience that interacting over time with strangers—even feared strangers—in voluntary settings motivated by mutual self-interest (think: farmers’ markets, ag fair booths, farm tours, “buy local” shops and Facebook groups) we do begin to see “the other” as partner, peer, friend.

As the Introduction's opening quotation (Morsink) hints, human needs for food, shelter and clothing are basic—and thus unifying, if we allow them to be. Coming to trust, rely, and depend on each other for clothing or life-supporting income gained from sale of fiber, yarn, or cloth, we begin to relate to an “other” outside stereotype but *inside* difference. We don't become “color-blind,” if such a thing exists or were desirable. Rather, we develop clearer sight: more nuanced, detailed portraits of the other, in all their specificity. Relating to each other solely within fibersheds' superordinate *economic* goals of buying, selling, trading, shopping, choosing, questioning, and answering, we meet on common ground and gradually reach a grounded appreciation of difference. Think of Mike Lewis and Alvina Maynard weaving veterans into fibersheds. Think of the diverse ethnic communities who buy lambs from Rach-Al-Paca's Rachel Boucher.

Fibersheds' superordinate *environmental* goals also bring us together. Think of Shannon Welsh's Pacific Northwest Fibershed and the relationships it has been obliged to forge in Minnesota, Nova Scotia, Belgium and France in its quest for environmentally sustainable fiber flax processing knowhow and machinery. Think of Janelle Orsi's sheep-farm-cum-cemetery community being forged from partnerships never before considered. Think of Lani Estill creating community among the nonprofit Fibershed, the Carbon Cycle Institute, and the USDA. Then think of the impact on fellow ranchers in her region. Remember Alvina Maynard's quoting the Farmer Veteran Coalition about how influencing those around us works: “We cannot make friends of our neighbors by damning them. The only way that we're gonna show them that this is a better way to consider is by being successful and being their friends and not damning them and just building community.” Fibersheds are a way of life, a movement, and a soil to soil approach that spreads

significantly not top-down but laterally—in relationship.

Our “counterstereotypic” portraits of others are more likely to arise gradually as well as situationally—perfect for fibersheds. Kunda notes that “thinking fast” enhances stereotyping. We can observe this in our own experience. It is precisely the slowness of “slow fashion” that allows us to learn each other in ways that lead to care for each other and each other's needs for clothing or income, for fair wages for labor, affordable clothing and household fabrics. Fibersheds regenerate relationships.

And of course, fibersheds not only teach but inspire love for the Earth and its processes. Think of Alvina Maynard's Ranch Camp and its popular poop pile. Reflect on the visionary pragmatism of the California Wool Mill study, with its near-future so inspiring—and so very much within reach. We can easily imagine US fiber flax that rivals Europe's but whose carbon debt is negligible. Everyone who wears Fibershed's Community Supported Cloth described by Lani Estill—everyone who joined that project as a stakeholder early on when

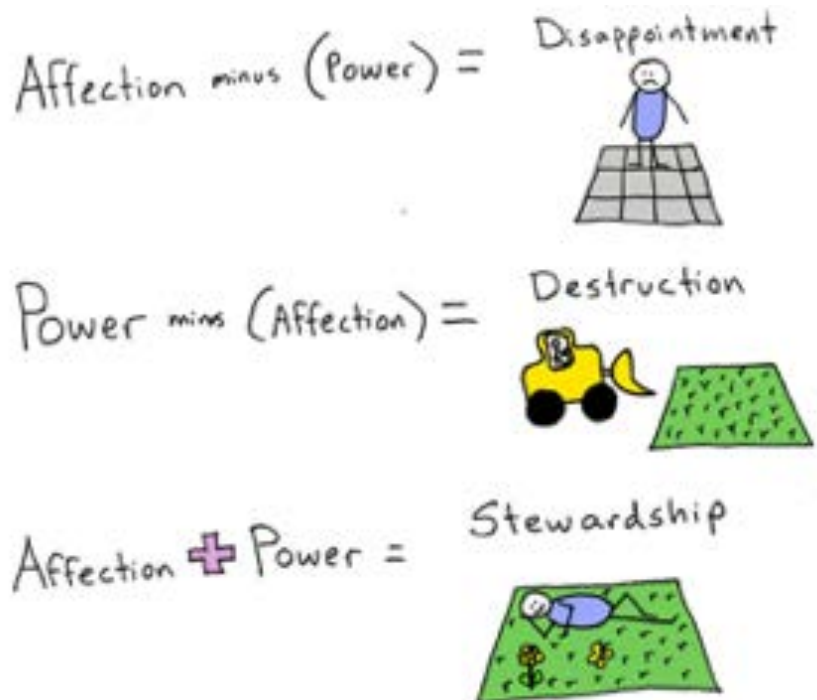
the cloth was sight unseen—is woven into the ecology and economy of that cloth in a way none will soon forget.

Relationships are power

Fibershed businesses sustain and are sustained by relationships. As we have seen, affection can be learned. This means that affection can also be *structured for*. It can be invested in the building of our economic, cultural, and ecological relationships.

We already know how to do this, if we think about it. Wherever we do it, we build power we can then put to work economically, culturally, and ecologically. **Stewardship is a function of affection + power**, as we see in the cartoon below.

Orsi's cartoon was inspired by Wendell Berry's essay “It All Turns on Affection,” in which, according to Orsi, “he talks about his farm and caring for the soil and how he doesn't care about the fact that there's soil being eroded around the Mississippi Valley, but he cares so deeply, to his core, about the health on of the soil on his farm and taking really good care of his farm.”



Source: Janelle Orsi, Sustainable Economies Law Center. Used with permission.

Case Study #5: Mora Valley Spinning Mill and Tapetes de Lana, New Mexico

Joseph Weathers has been Executive Director of Mora for the past seven years. He came to the mill with a business, military, and ranching background. He has brought the mill to a self-sustaining \$250,000 in annual income and 70,000 pounds of wool processed yearly. Mora Mill is a nonprofit founded in 1997 by the weaver Carla Gomez, a sixteenth-generation New Mexican whose grandfather was a shepherd, weaver, and antique Navajo and Spanish rug restorer (Echavarria).

Where some mills, like the one being created by Matt Gilbert that is mentioned at the end of Case Study #4, serve or intend to serve only their immediate region, others are far-reaching. Mora Mill does custom processing for customers from the East Coast to the West Coast, and Canada. “Tapetes de Lana is the name for [the Mill’s] weaving gallery, local art center and factory direct yarn store on mainstreet in Mora, New Mexico, in a renovated historic mercantile. We...provide training in weaving and a gallery space for weavers to sell their work. We also show and sell the work of local artists— potters, quilters, photographers, painters, woodworkers, soap and salve makers, jewelers, knitters, crafters, and etcetera!! Our shop is filled with yarns made in our mill with local and regional fibers, in natural colors or dyed by hand (Mora Valley Spinning Mill).”

But the Mill has taken on even more than becoming a profitable nonprofit, offering national fiber processing, training, clothing woven, knitted and crocheted on-site by its staff, handcrafts from over 90 local artisans, a “coffee barn” cafe, and locally-sourced yarns. The Mill is a fiber “bank” on a smaller



Mora Valley Spinning Mill (Photo from rebeccamezoff.blogspot.com)

scale not unlike the New England Alpaca Fiber Pool described in Part I—and its own research institute! No other interviewee mentioned the astonishing variety of fibers the Mill is presently experimenting with: “[w]e have run alpaca, yak, wolf, buffalo, camel. Just about any fiber that’s ever been created, we’ve done. We’re now in the process of doing a hemp with wool blend, and we’re trying to create a yucca and a churro wool blend.”

Given its successful economic and innovation activity, Weathers describes the Mill’s mission, surprisingly, in terms of human relationships: “economic development through employment,” noting how important this is in an area where people may have to drive 150 miles to work. (An 1999 Hitachi Foundation grant of \$50,000 was for Mora’s training program. Soon after that, a \$99,000 USDA grant put the Mill “on the map” (Hitachi Foundation). No grants are currently received. The Mill currently employs 11 people

and that number has gone as high as 18. Wages are higher than average, and skill is rewarded with higher wages (Weathers interview; Hitachi Foundation).

The Mill integrates ecology and economics. For example, sheep farming for wool (as contrasted with meat was subsidized throughout the 1980s. Farmers continue to raise sheep for meat, but stopped shearing wool after subsidies ended. The Mill gives these local farmers a useful, paid outlet for their wool, keeping this precious resource from being wasted.

Another group to whom the Mill has become important are Navajos, known for weaving:

we process most of the Navajo Nation’s wool.....some of them are not wealthy enough to process their wool, so what we do is we offer a spin-for-trade program, which they bring their wool into, we spin it, and we keep a percentage and we

(Continued on the following page)

give them back a percentage. So for those Navajo weavers that don't have money to pay for processing of their wool, they're still able to have processed wool provided for them....And it keeps that art... alive. Weathers brought up another example almost in passing: "we're trying not to use electricity, we built a passive solar drying room [as well as] racks outside....we try our best not to have to use electricity to finish drying our wool."

He noted, cryptically to us at first, "the weather has a lot to do with our mission," with reference to the impact of drought. Drought has made the cost of the Mill's preferred natural dyes skyrocketed tenfold in price; it has also meant farmers reducing their flock size.

Weathers' next direction (after the coffee barn) is more stock—hiring more weavers and spinners: "I have trouble keeping my store stocked." He described that the most strategic direction of investment for the Mill would be newer machinery: "getting yarn through 60-, 70-year-old machines is time-consuming, where, you can send it to another factory that has very modern but they don't have the...more hands-on approach that our mill does."

Mora's hands-on approach includes its scouring, a cleaning process many mills automate:

Our mill is almost about the size of city block, a small city block. So scouring, we have four tubs and three machines which we spin it in, basically the spin-cycle of your washing machine....We go through by hand and we skirt out the shorts.... Fiber has to be approximately the size of your ring-finger to get it through my mill. So at the skirting area we take out all the vegetation and the [fibers too short for spinning]. And fecal matter, and that kind of stuff.....we use a special detergent that's similar to what you would use at home, like Woolite, and then we use soda ash to wash ... to get the lanolin out of the wool....It goes into a bag and it drops into the vat and then we spin it out, then it goes into another vat of wash water, goes back, gets spun out, then it gets rinsed twice before we put it on the dry racks.

Weathers' daughter Karen Vigil gets to the Mill after a full day student teaching. "[S]he's basically the reason we turned this mill around....She'll go through and 'You need this, you need this, you need to make this,' and she gives us all

our marching orders." Weathers knows "she could sell dirt to a pig farmer," noting that he "used to use a different word than dirt." Karen runs the Tapetes de Lana gallery and shop. She walked in from her school day during our interview, so we were able to ask her vision for expansion, and without hesitation, mid-stride, she replied:

Well, first off...training our staff to be a little more knowledgeable about some of our products.... That way when people call from out and about they don't have to be forever chasing me.

which was exactly our experience in setting up the interview!

She continued,

And the second would be in marketing or advertising, because we have wonderful stuff but we don't have an online store or anything else that kind of promotes us.

Karen's dad "got a kick" out of the difference between their answers, noting the gallery and the mill constitute almost "two different businesses," each is so engrossing in its own way.



Work in progress at Tapetas de Lana (Photo from moravalleysspiningmill.com)

From this, Orsi derives **an ecological and economic politics of affection**:

it really planted in my mind that what we need to do is create long-term relationships to place so that people are able to apply their affections to stewarding a place to ecological stewardship and local economy stewardship....I think of the farm workers....[T]hey are the ones touching the soil. If they owned the business that they're working for or shared in the ownership of the land that they're working on then they can apply the affection that they have to that land to actually stewarding it in the long term...

[B]ut what we have instead, for the most part, the people who are touching the land have no long-term interest in it or ownership over it. They might not have any ownership stake over the business....[this is]as another thing that reinforces, to me, the need for cooperative[s as] entities that really spread power down to the level of every individual so they have the power to care for things, apply their affection to things.

Fibersheds privilege loyalty. Loyalty is a handy quality when it comes to building economic, ecological and cultural power, but not loyalty that “makes nice.” Rather, we focus on a loyalty rooted in interdependence, mutual self-interest, and grounded, counter-stereotypic appreciation of difference.

Fibershed economics are rooted in the soil to soil lifecycle. Precisely because they are, that lifecycle sustains fibersheds' economics. **Fibersheds regenerate economic relationships**, of

- producers to each other
- producers to their specific soil
- producers to the business that gives them sustained livelihood
- producers to consumers
- consumers to the soil where producers work and products are born

- consumers to sustaining workers' jobs and businesses
- businesses to their workers, customers and soil from which their profits are born.

As our quote from Grose in the Introduction promised, learning to see “relational embeddedness” changes us. It changes what we invest in. It becomes “an iterative sustainability practice enabling us to operate at increasingly complex levels over time” (Grose).

Common struggle

As we have seen, **successful regional economic development means that historically culturally divided groups meet as co-participants in a regional economy and ecology**. All people want to be acknowledged, and see real opportunities for futures they genuinely desire. We can invest in people who want to make things for a living with dignity and pride to *enable them and us* to cultivate the lifestyles we imagine.

The responsibility that comes with taking a “multi-systems-wide” approach is to support, fund, and invest within that approach for future everyone sees themselves in and that creates concrete hope.

“People feel like they’re in a frying pan,” says Manilov. “And [they’re] climbing over each other to get out.” She recalls seeing footage of a pre-election Trump rally in Ohio. It was racially diverse. “Within white America it’s become a story about who’s taking your jobs. But no matter what race you are, you think another race is taking your jobs. We must understand what people are thinking and feeling to know what actions will be most useful.”

On the ground, the frustration is palpable.

Look closely. Rural communities are just as scarred and segregated as urban areas, says Starkman. She

wants to see programs in place that “help people living in communities understand what we mean by systemic discrimination.” What does it look like? Where does it come from? How does this idea affect their day-to-day experiences? And most importantly, “what are some of the solutions? We need better, community-specific policies in place, like access to food.”

Flaccavento says that farmers feel left out. “They have a sense of ‘no one cares about what we do, the wealth we create is extracted, our land is being taken,’” he says. “We should be able to mobilize that sense of disenfranchisement and transform it into empathy with people in cities who are going through the same thing.” If we defined the experience of struggle using that perspective, it would be easier to illustrate a shared fate. “There has to be a sense of commonality,” Flaccavento says.

Policy, holistic thinking, and self-reflection

Michael Skolnik, former political director for Russell Simmons and current CEO of The Soze Agency, a full-service creative impact agency, thinks the link between education and property taxes is our greatest challenge. Many believe that an education is enough to give kids a chance to compete fairly. He asks, “But how’s education funded in this country? Much of it is funded by property taxes. There is no secret that rich communities have good schools because high property taxes fund those schools.” When people ask Skolnik how to end racism, he replies, “The first step is to get rid of property taxes [being] connected to education.”

Skolnik’s point is vital *beyond* education. When we think multi-system-wide about ways to create blue-collar jobs and job training, especially for vulnerable populations, we see that we must take as much care designing

power, ecology, and regenerated relationship into these structures as are already included in the design of white-collar jobs and job “training.” Economic divides and racialized policy will greatly impact the accessibility of that future for all.

One way to bridge the divide is to promote self-awareness, says Polonius. First, “it has to happen at the individual level. Then we figure out how to aggregate. I’ve worked hard on my own biases, and recognizing my own language.” This is basic to regenerating relationships across cultural divides.

For Endres, this requires putting people from various backgrounds in the same room. As we have seen, fibershed businesses and marketplaces achieve this. “That’s how it happens,” she says. “Nothing works like sharing stories. When you get people into a space, and create safety, that allows people to show up with their truths.”

It’s a matter of having the right conversations in the right place, according to Chaloult. “Acknowledgement of past oppressions is key,” she says. “It creates the space for healing. White people in those spaces should have enough self-reflection to be active listeners. People

of color need to feel safe in their honesty and vulnerability.” Creating safe spaces depends on a lot of work being done internally first. Education supports accountability; those with power need to understand their own privilege, says Chaloult.

Shanley Hope has worked with multiple organizations that take an intersectional approach. “People of color work on multiple issues simultaneously,” she says. “It’s how people actually live their lives.” The big push for her is connecting communities with their ecosystems. “Whether that’s not having your water poison you (Flint, Michigan) or not paying a billion dollars for your water (Detroit),” having access to parks and green spaces, going hunting and fishing are options that should be available to people who want them.

She wants to counter the myth that people of color aren’t concerned with the land. Clean, renewable energy efforts should be focused on the needs of the most vulnerable, Shanley Hope says. In many cases, that’s people of color.

The instinct of some organizations to remain urban-focused is problematic. Bibbins believes such a view is unnecessarily self-limiting and must

at least come up for discussion: **“Even if you’re not working on rural issues, you must understand them,”** she says. **“You can’t do urban water work without understanding headwaters.”** Again, we see that a multi-system-wide approach creates “relational embeddedness” that will help us, ultimately, not only see, but create businesses, policy, and investment strategies that do things very differently—soil to soil.

Bottom line? Privileged people must be willing to disrupt their conditions, says Lana Holmes, former Silicon Valley CEO. “Technology has made the world more accessible for many, while it’s also facilitating the abuse and enslavement of others.” ‘Until “you are another me” has become a reality, we’re not going to see a shift in the way our system works,’ says Holmes. The biggest challenge, in her opinion, is ignorance. Ignorance is impossible in the organic way people come together across divides within fibersheds.

Visionary? So much has changed already. “Nothing is inevitable,” says Patel. ‘There’s no such thing as “it can’t be done.”’ With people power, he believes, we can create the conditions for the thriving societies we all hope are possible.

Conclusion



The community celebrates the opening of Huston Textile Company (Photo by Paige Green)

THE PEOPLE profiled and interviewed in this paper are thinking about how to benefit people and ecosystems far beyond their regions. If we observe the examples and listen to these visionary farmers, writers, nonprofit and for-profit entrepreneurs, what's not just possible but already being done is inspiring. It obviously deserves our support.

What are the most strategic ways to direct that support? Our Conclusion touches on several we have thought of:

- direct support, via grants, gifts, loans, and other forms of financing and investment to the enterprises described herein;
- helping forge creative partnerships like the sheep-farm-cum-cemetery described by Orsi;
- supporting next steps for the Southeastern Massachusetts Fiber and Textile Roundtable;
- supporting first steps in organizing similar roundtables bringing producers, farmers, lenders, funders, designers, and promoters together from within other fibersheds;

- hosting and joining “salons” that seed the relationship-forming process between lenders, donors, funders on one side and farmers, producers, designers on the other, ensuring justice in the invitees’ lists on both sides. Pipeline Angels are a premier example of this attention to detail and justice within the investment community;
- insisting on relationship-building that engages justice by integrating antiracist and other anti-“othering,” anti-oppression education, training, and informal strategies;
- regarding labeling for fabrics: assessing the variety of eco-labels extant (for example, at <http://www.ecolabelindex.com/ecolabels/?st=category,textiles>) and highlighting them, on the model of the sustainable food movement giving consumers the true costs of clothing and household fabrics we buy in terms of carbon debt, local jobs created, local sourcing, and ecological sourcing;
- create and participate in “living portfolio” events introducing investors and investees to each other.

We welcome your thoughts as well. We see this as a living document that attracts to itself like a magnet creative visions, plans, and strategic opportunities for support.

This paper has advanced the ecological, economic, and cultural benefits of the multi-system-wide approach to soil to soil lifecycle fibershed textiles throughout. We’ve sought to illustrate the approach through the eyes and stories of individuals, de-emphasizing the literature reviewed in this paper as well. The paper reflects what our interviewees have thought, felt, and seen as they make change. During these interviews, we heard fears of losing family land. We heard the pain of being misunderstood, or worse. We heard the isolation of feeling like a lone voice in the wilderness, calling for change. This work is rooted in real emotion, real loss, and real need.

Economic development that creates generational, lasting, inspiring opportunities begins with meeting people where they are. We start with our human visions for progress, and encourage diversity in all arenas to ensure a healthy eco (-logical and -nomic) system. In this Conclusion, we realize we are also tasked with *fertilizing* that vision through continuous investment.

As we hope we’ve conveyed, our investments must focus regionally. Half the net increase in new businesses between 2010 and 2014 were due to just twenty of the United States’ 3,000 counties (Economic Innovation Group). That’s not just economic privilege—it’s economic insecurity and tantamount to economic insanity. America’s wealth-production hangs on these super-performing urban counties (Lowrey), while functionally forgetting about the majority. We need a investment strategies that prioritize under-invested counties—both urban and rural—in a way that bridges regions. Investing in this way forges concrete economic opportunity and fuses it with the momentum so often missing in these communities. Some of this investment is clearly indicated in fibersheds!

We can *design progress* with our values in mind. Automation is responsible for about 88 percent of the five million factory jobs lost between 2000 and 2010 (Hicks and Devaraj). This trend has historical roots dating before NAFTA. The United States lost half its manufacturing jobs before such trade policies took effect, and seven years before China joined the World Trade Organization (The Week).

This trend does not necessitate a doomsday view of job loss. Rather, it points us to the importance of *designing our future*. It requires a huge investment that we have not yet been willing to make as a society of money, yes, but also of awareness, compassion, interrelatedness—in short a multi-system-wide approach that gives us an iterative understanding of

sustainability and interdependence among human, economic, and ecological systems.

We can design policies and direct our finances toward a future that cares for human livelihood and creates worthy opportunities for people who work with their hands. Or we can also choose to continue to value profit over people—maintaining our long history of human suffering for monetary gain. The choice is ours.

Economic development that starts with people and has a regional approach requires relationships grounded in affection for the land, the work, the product, and each other. It requires nuance, subtlety, and people skills. It’s easier to rely on economic theory and good speeches at the national level, than to do the slow, sometimes painful work of moving divergent local communities toward consensus on economic strategy. But this is the work. When people see each other, and really hear each other, we make development decisions that serve all of our families in the long run.

The entrepreneurs and advocates in this paper, and the millions of people they represent, need investment. Many of the off-the-shelf solutions and mechanisms they mentioned simply aren’t “sexy” enough to make a loud noise—yet—in our domestic conversation about rebuilding US manufacturing, rural, and inner-city economies. If we resist being distracted by flashy, ungrounded, or patently false solutions, we can support the people we know have the right answer—and in so doing, support ourselves.

We can create livelihoods for all. We can regenerate and re-root local communities. We can offer unborn generations a future. We can help heal cultural divides that have shattered and harmed communities for hundreds of years. This is how we rebuild our country.

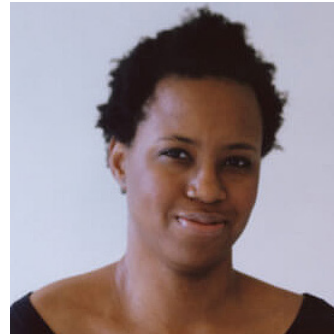
Contributor Bios



Nikki Silvestri is the Founder and CEO of Soil and Shadow, a project design and management firm working to create systems change while improving relationships between communities. Nikki has built and strengthened social equity for underrepresented populations in food systems, social services, public health, climate solutions, and economic development. A nationally recognized thought leader, her many honors include being named one of The Root's 100 Most Influential African Americans.



Beth G. Raps, PhD specializes in **Punctuated Passion and Precision** when it comes to writing, and **RAISING CLARITY** when it comes to moneycoaching and fundraising for causes and people she loves. She is a published French translator and philosopher, mother, and an “out” contemplative.



Osayi Endolyn is a writer and the associate editor of *Gravy*, a Southern Foodways Alliance publication. Her work, often about food and drink, has appeared in *Eater*, *Bitter Southerner*, *Atlanta* magazine, and she's been featured on *The Splendid Table*. A California native, she now resides in Gainesville, Florida.



Rebecca Burgess is the executive director of Fibershed and the board chair of the Carbon Cycle Institute. Her work focuses on research, public education, and economic development strategies required to bring forth bioregional textile production. She is the author of *Harvesting Color* and the forthcoming author of a new book on Fibershed Systems. She is a fifth generation member of the Ross Valley Watershed in Northern California.

References

- Amber Bieg, Rebecca Burgess, Dustin Kahn, Erin Axlerod, Jenny Kassan, Marcia DeLonge, and Lydia Wendt, “Fibershed Feasibility Study for a California Wool Mill.” February 2014. Accessed 10/16/17: <http://www.fibershed.com/wp-content/uploads/2016/10/Wool-Mill-Feasibility-Study-Feb2014.pdf>. Note: The Study summary and appendices are downloadable here: <http://www.fibershed.com/programs/textile-economy/wool-mill-vision/>
- Bureau of Labor Statistics, “BLS Spotlight on Statistics: Fashion.” Published June 2012. Accessed 10/17/17: https://www.bls.gov/spotlight/2012/fashion/pdf/fashion_bls_spotlight.pdf
- Rebecca Burgess, Jess Daniels, Tess Meinert, Maddy Bartsch, Chris Erichsen, Dustin Kahn. “National Mill Inventory: An Exploratory Representation of U.S. Fiber Processing.” 2016. Accessed 10/17/17: <http://www.fibershed.com/wp-content/uploads/2016/12/Mill-Inventory-Report.pdf>
- Anna Canning. “A Soil-to-Soil Vision for the Fashion Revolution.” Accessed 10/17/17: <http://fairworldproject.org/publications/issue-15-fall-2017winter-2018/>
- Mitch Driggers. “Wool in the Military.” No date. Accessed 10/17/17: http://www.sheepusa.org/Newsmedia_SheepIndustryNews_PastIssues_2017_January2017_WoolInTheMilitary
- Dumfries House Conference. “The Dumfries House Wool Declaration.” September 9, 2016. Accessed: 10/15/17: <http://www.campaignforwool.org/wp-content/uploads/2016/09/Dumfries-Declaration-A4-final-26Aug-copy.pdf>
- Marcella Echavarria. “Tapetes de Lana, Raising Sheep and Taking Care of New Mexico.” In *Handeye Magazine*. Accessed: 10/23/17: <http://handeyemagazine.com/content/alternative-lifestyle>
- Economic Innovation Group. “The New Map of Economic Growth and Recovery.” Accessed 7/16/17: <http://eig.org/wp-content/uploads/2016/05/recoverygrowthreport.pdf>
- Lani Estill. “Carbon Farming & Climate Beneficial Wool.” Accessed 10/15/17: <https://www.lanislana.com/climate-beneficial.html>
- Farmer Veteran Coalition. “Alvina Maynard.” Accessed 10/22/17: <http://www.farmvetco.org/stories/alvina-maynard-2/>
- Fibershed. “Carbon Farming.” Accessed 10/17/17: <http://www.fibershed.com/programs/education/carbon-farming/>
- Fibershed National Mill Inventory. Accessed 10/17/17: <http://www.fibershed.com/programs/textile-economy/mill-inventory/>
- Lynda Grose, “Fashion as Material,” in the *Routledge Handbook of Sustainability and Fashion*, Oxon and New York: Routledge, 2015.
- Michael J. Hicks and Srikant Devaraj. “The Myth and the Reality of Manufacturing in America.” Accessed 7/16/17: <https://conexus.cberdata.org/files/MfgReality.pdf>
- Hitachi Foundation. “From Fiber to Economic Whole Cloth: The Story of Tapetes de Lana.” Accessed 10/23/17: <http://www.hitachifoundation.org/stories-of-grantees-in-action/41-from-fiber-to-economic-whole-cloth>
- International Food Policy Research Institute. “Smallholder Farming.” Accessed 10/22/17: <http://www.ifpri.org/topic/smallholder-farming>
- Sarah Kelley, “Common Threads: U.S. Foundation Opportunities in Sustainable Fiber and Textiles.” July 2017. Sustainable Agriculture and Food Systems Funders. Accessed 8/31/17: http://www.safsf.org/wp-content/uploads/2017/09/SAFSF_CommThrd_D7_FINAL.pdf

Ziva Kunda. *Social Cognition: Making Sense of People*. Cambridge: MIT Press, 1999.

Annie Lowrey. “2016: A Year Defined by America’s Diverging Economies.” Accessed 7/16/17: <https://www.theatlantic.com/business/archive/2016/12/2016-diverging-economies/511838/>

Mora Valley Spinning Mill. “About Tapetes de Lana.” Accessed 10/15/17: http://moravalleyspinningmill.com/tapetes_de_lana/about_tapetes_de_lana/

Johannes Morsink, *The Universal Declaration of Human Rights*. Philadelphia: University of Pennsylvania Press, 1999.

New England Alpaca Fiber Pool, Inc. (NEAFP). “About NEAFP.” Accessed 10/22/17: https://www.neafp.com/index.php?dispatch=pages.view&page_id=3

New England Alpaca Fiber Pool, Inc. (NEAFP). “Fiber Bank.” Accessed 10/22/17: <https://fiberbank.neafp.com>

Todd Nelson. *The Psychology of Prejudice*. Allyn & Bacon: 2006 (2002).

Jerry Pennick and Heather Gray. “U.S. Cotton Program & Black Cotton Farmers in the United States.” 2006. Accessed 10/15/17: “Part One: Historical Overview”: <http://www.federationsoutherncoop.com/cottonstudy/cotton1.htm> “Part Two: Findings and Analysis of Interviews with Black Cotton Farmers”: <http://www.federationsoutherncoop.com/cottonstudy/cotton2.htm> “Part Three: Recommendations for Agriculture Policy Based on the Research Findings.” <http://www.federationsoutherncoop.com/cottonstudy/cotton3.htm>

Jeff Price, “2016 State Of The U.S. Textile Industry.” Published May 23, 2016. Accessed 10/17/17: <http://www.textileworld.com/textile-world/features/2016/05/2016-state-of-the-u-s-textile-industry/>. Source first found in Kelley.

River Hill Ranch. “Ranch Camp!” Accessed 10/22/17: <http://www.riverhillranch.us/ranch-camp>

SEMAP (Southeastern Massachusetts Agricultural Partnership), “Research: Fiber & Textile Roundtable Notes,” <https://semaponline.org/programs/research/>

Nikki Silvestri. Soil and Shadow. 2017. Accessed 10/21/17: <https://www.soilandshadow.com/what-we-do>

The Week. “Can President Trump Rescue the Rust Belt?” Accessed 7/16/17: <http://theweek.com/articles/686314/president-trump-rescue-rust-belt>

US Department of Commerce, Economics and Statistics Administration, “What is Made in America?” ESA Issue Brief #04-14, published October 3, 2014. Accessed 10/15/17: http://www.esa.doc.gov/sites/default/files/whatismadeinamerica_o.pdf

US Department of Commerce, Economics and Statistics Administration, “2015: What is Made in America?” ESA Issue Brief #01-17, published March 28, 2017. Accessed 3/8/2018: https://www.commerce.gov/sites/commerce.gov/files/migrated/reports/2015-what-is-made-in-america_o.pdf

US Department of Commerce, Economics and Statistics Administration, “Made In America: Apparel, Leather, and Allied Products.” No date of publication. Accessed 10/15/17: <http://www.esa.doc.gov/sites/default/files/ApparelandLeatherIndustryProfile.pdf>



FIBERSHED

fibershed.com

Soil
and SHADOW

soilandshadow.com