Designing Our Future in a Changing World

An Interview with Ben Falk

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Whole Systems Design, Inc., describes its work as "occurring at the interface of people and land where the built and biological environments meet." Based in Vermont's Mad River Valley, Whole Systems Design integrates ecology, landscape architecture, site development, construction, farming, education, and other disciplines. Founder Ben Falk holds a master's degree in landscape design and has taught at the University of Vermont and Harvard's Arnold Arboretum. *Vermont Commons* editor Rob Williams conducted this interview.

I read a recent article you wrote in which you stated "Climate change happens. Design for it." What do you mean by this?

We need to prevent climate-changing activities as much as possible if we are to maintain a habitable planet, no doubt. However, the climate's already changing, it always has, and it will continue to change, sometimes radically, even without human influence. How do we design for this? Our work involves employing ecological design and permaculture strategies to develop buildings, landscapes, and communities that can be resilient in the face of increased climate variations—longer droughts, hotter summers, colder winters, more intense wind and ice storms, increased pests, heavier precipitation events, etc. Our site-design and development work buffers regional climates at the site level (microclimate development); diversifies biological systems and integrates them with built systems; holds water in the landscape; develops the highest quality, most durable, and passive building systems; and employs many other techniques for dealing with the challenges posed by earth's changing climate and society's hyperdependence on dead-end resources.

You've spent some time thinking about how we might redesign Vermont in the face of what might politely be called our "carbon-constrained future"—dwindling access to cheap and abundant fossil fuel-energy. What are some of the most immediate challenges Vermonters face as we enter the twenty-first century?

Start with the big challenges we face today: climate change, peak oil, nukes in the hands of rogue organizations, a U.S. government prioritizing war over all other endeavors, dwindling reserves of fresh water and soil, etc. How might these problems play out in Vermont during the next few decades, and how do we respond? Calculating your carbon footprint is a nice exercise, but first take the 30-second "will-you-survive-in-this-place" test. Imagine your home in the following scenario:

The electrical grid is down and it's not coming back up because Vermont Yankee had a major malfunction and Hydro Quebec pulled the plug after deciding that Canada or states downstream needed more electrical power (and could pay more for it) than Vermont. You're out of heating oil and the delivery truck won't come—even if you could afford the \$5,000 fill-up. It's January and an "Arctic clipper" is pushing minus-20-degree air into Vermont. The fridge is empty but you can't afford the \$10/gallon gas to get to the store. The septic system is full and the truck won't come.

So let's talk about moving forward. How do we think outside the box here?

It's silly that we've put ourselves in such a precarious position, because there are a few simple and affordable systems that could, at the home scale, fundamentally change this situation for the better. One's called a composting toilet. Another is a big home vegetable garden, and gravity-fed drinking

water. Another is twenty fruit trees and a half acre of nut trees. Another is a root cellar. Another, better insulation and a masonry heater, or at least a wood stove. For the minority of us who can afford it, there are solar hot water and electric panels.

At the macro level it's going to take investment by the public sector and those who can tip the scales of affordability for renewable technologies, local food systems, high-efficiency building systems, and the like: passive refrigerators, solar thermal panels, high-efficiency wood heaters, greenhouses, edible and highly productive landscapes. It's going to take substantial state incentives, private investment, and community/watershed-level initiatives to make the postcarbon systems shift happen.

The nearly complete lack of readiness of our rural population to provide themselves with a basic measure of food, water, shelter, and fuel is an urgent public safety issue and is antithetical to democracy. If our educational institutions address this challenge, it will be through reorganizing their programs, at least in large part, to teach, as Abraham Lincoln put it, "the fine art of making a living from a small piece of land."

We also need to think clearly about how we ought to spend the remaining petroleum in our fossilfuel savings account: We can burn petroleum only to burn more, like we are now. Or, we can use the remaining petroleum to establish energy, food, transport, and manufacturing systems that will durably function with little to no petroleum far into the future. Right now is the most affordable time to develop a sustaining economy for the future; it's only getting more expensive each week.

The logical planning question is this: what does a more localized future look like, without the destruction and hardship involved in the localization of the past? We need working examples of more sustainable food, fuel, electricity, and mobility systems at every scale in every valley and every village. If our rural places are to support decent livelihoods into the post–fossil fuel future, they will be organized to generate the most valuable nutrient- and calorie-dense foods and fuels per acre. This would necessitate the third, and possibly final, back-to-the-land movement. And this time it will involve everyone; it's going to take a lot more hands on the land to bring about a more productive land use. Many people will again be employed in the northern forests and fields. This shift requires unifying land preservation and conservation approaches with use-based strategies such as hunting and farming. It's possible for forestry and farming to greatly improve wildlife habitat and ecosystem health while offering abundant livelihoods for people. The father of modern conservation knew this; Aldo Leopold designed farms that grew wildlife in the early part of this century, but we didn't build on his work.

So what role might Vermont's landscape play in the development of a more sustainable, more democratic society in New England and, perhaps, the "*Untied* States" as a whole?

I think there are four facts about twenty-first-century U.S. society that frame our thinking here:

- 1. We are 80 percent urban (without significant production resources in the form of farms, forests, mines, etc.) and 20 percent rural.
- 2. We use almost all of our resources remotely from their source.
- 3. These resources are produced and distributed via petroleum at every step.
- 4. These resources are evermore difficult and expensive to obtain as long as they are remote and require nonrenewable resources to source and distribute.

How do we turn this precarious situation into one in which our livelihoods are sourced from a more selfreliant and renewably powered regional and local economy?

Part of the challenge requires shifting from an import-based consumer culture into a generative "producer culture." This involves a reruralization of the Vermont landscape, which will be producing not only most of what our own citizens need to live but also producing many resources for larger population centers in our region like Montreal, Boston, and New York City—places that, due to their

density, will continue to be sinks for most materials and energy resources (but providers of nutrients, information, and cultural resources). If we think ultradense urban centers will grow a meaningful fraction of their calories on rooftop gardens, we are hopeful but not realistic.

If we imagine what a more regionalized and sustainable society will look like in five, ten, or thirty years, we realize that rural areas of this country are going to be pressured into performing the role that nonindustrialized nations are performing today. The future success of rural societies is dependent upon the degree to which they develop regenerative working landscapes: places that produce more resources than they consume. Even Thomas Jefferson could not have realized the true extent to which the rural landscape of America will be the basis of its survival and success as a democracy. I think it's clear that a primary way to overhaul U.S. society's imperialistic underpinnings is through the redevelopment of a highly productive rural land base that is organized at more regional and local levels than the current global economy.

So, are you suggesting that we view Vermont as one large diversified, integrated, but decentralized farming/production system?

Yes, with an expanded idea of what the word "farm" can mean—farm as sustainable production system, a renewing economic system. Farming in contrast to mining. Today, even in Vermont, most agriculture, and especially most forestry, extracts more value from the land than it cultivates; that's mining. But this can easily change: Vermont is positioned to become a leading example of a cold-climate rural land–based economy. What kinds of planning and land use does this entail? Vermont would provide leadership in regenerative rural economic development by implementing a statewide diverse-yield planning process based on important questions such as:

- 1. What is Vermont most suited to producing? What are all the yields—from apples to venison, fish, freshwater, biofuels, squash, plums, hydropower, slate, renewable-energy technologies, chestnuts, tourist dollars, carbon sequestration, hardwood, information, methane, education, furniture? These are all yields that this state's physical and cultural resources are uniquely suited to produce.
- 2. What are the current and future markets for these yields—who and where are they?
- 3. How will we distribute these yields within the state and out of state?
- 4. Which region within the state is most suited to each yield? We would sector-ize the state into zones of use and production just like one would do with a profitable and well-managed farm.

Okay. So what kinds of projects would be most strategic in transitioning Vermont into a more locally reliant, productive landscape?

There are numerous initiatives that could be started tomorrow with great success if the social and monetary capital was ready to back it. Some of that capital is already emerging, as many of these projects simply represent profitable business investment opportunities. Reducing driving miles and roadway maintenance while increasing our ability to share capital resources and production systems—tractors, chippers, kilns, commercial kitchens, sawmills, and other light manufacturing facilities, for example—is perhaps the most important overarching strategy we can employ. This means resettling the villages and town centers. Most Vermont town "commons" are today virtually abandoned. If we're here in one hundred years, they will be bustling again. Rural landscapes can become highly functional through diversifying land uses and yields, maximizing crop and product integration, and minimizing input needs through increased efficiency, cycling of fertility on site, and other basic measures.

Other ideas?

Why not increase the value of Vermont's ski slopes by grazing Brown Swiss, Jersey, and other alpine-appropriate cows, goats, and sheep? They've been doing this in Austria for a long time. Why would we mechanically mow the state's steepest hillsides at an expense when the same land can turn a profit instead? Imagine our vast, public-mown turf areas transformed into fruit and nut orchards. We can generate 1,000 new high-quality jobs in the state in the span of a year, as well as stimulate the local economy and increase local food security by producing 100,000 pounds of fruit and nuts per year on lands that are currently mowed resource sinks. Part of a livable future involves replacing fossil-fuel–driven lawn mowers with human-powered shovels, seedlings, and jobs.

Why should we wait for another dust bowl or depression for state-supported land development? Vermont is positioned to show the nation what a New Deal for the twenty-first century would look like. We have time perhaps for one more big push like we saw in the 1930s. Imagine if the Works Progress Administration had established tree-based agricultural systems that would now be bearing trillions upon trillions of calories for use as food and fuel oils, carbon banks, wildlife production zones, and beauty. We could evolve the Current Use program to incentivize multiple outputs of our complex forests instead of only sawlogs and cordwood. We still call timber management plans Forest Management Plans. We've totally missed the forest for the trees and have let simplistic silviculture dominate the management of complex, multiple-yield woodlands.

When Vermonters move to create an independent republic, I'm going to nominate you for Secretary of Permaculture. How long will it take Vermont to reinvent itself as an independent republic, do you figure?

The degree to which we become more independent and free politically is highly dependent on the degree to which we get the two primary aspects of our interdependence in order: economy and policy. By "economy" I mean the basic needs: food, shelter, water, healthcare, energy, some mobility. I think the economic foundation of any place needs to be strong before a place can be its own polity. Can we imagine a desirable independent republic without a vastly more sustainable, more self-sufficient economy? Vermont imports almost all of its basic economic resources. Vermont becoming more independent politically would most effectively be preceded by Vermont becoming more independent and generative economically. Broad-scale regenerative land use is the foundation of enduring personal and collective freedom.

There's a lot of talk and some action about making this happen. Take Pete's Greens for example. This is a solid model of local economic health; they produce enough vegetables for about 1,000 people, I am told. Vermont has about 620,000 people. So at some point in the future the market will support 620 more season-extended, diverse vegetable farms. That's fantastically good economic news. That's an entire fiscal platform for a politician right there. "I will see to it that this state incubate another 100 organic farms equipped with passive solar greenhouses, per year, for the next six years." I can hear it now.

I can, too. But let's not wait for the politicians to lead. It is up to us to begin this work on our homesteads and in our communities. Any last thoughts?

With vision and planning, Vermont could manage the state's landscape as the first continental redevelopment project, in which the colonial settlement methods we've tried since 1492 would be overhauled and rebuilt to be more durable, more profitable, more collective, and more democratic. It is clear that the development of a local living economy is the most direct way to connect ourselves to one another, to rebuild and reinvent our culture, to celebrate the beauty of this place and our lives within it.