

ALICE'S BLOG



How Shall We Feed, Shelter, and Clothe the World?

By Alice Loyd

Too many bad things are happening. At this moment the US Congress is preparing to approve a tax code revision that is a hymn to the rich and a declaration of war on the poor. The economic-industrial system continues to put pressure on the planet's ability to sustain life. As the ice melts, the time to make the shift to an ecologic culture grows short. In this interval of opportunity, where can we see signs of the transition we need and desire? I'm looking at movement in three areas that pertain to what we usually think of as necessities for human existence: food, shelter, and clothing. What are some of the negative impacts privileged people, Americans and others, are producing as we feed, clothe, and protect ourselves from the elements, and what are some of us doing that will help to make meeting these needs more compatible with the needs of other humans and nature?

In the hierarchy of necessity, I'll begin with the third, the matter of what we wear. According to a new [report](#) from the Ellen MacArthur Foundation, as much as 60 percent of our clothing is made from plastic, and we now know that every time we wash our clothes, tiny plastic microfibers get released into the washing machine, then into the waste stream of water that eventually enters rivers and oceans—around 8 million tons of microplastic every year from all sources ([popularmechanics.com](#)). Indeed, clothing is responsible for some of the plastic found in the drinking water tested in studies published this past September. Investigators tested samples of tap water from around the globe, and found that almost all of it was contaminated by microplastics. The United States had the highest contamination rate, with 94 percent of samples contaminated; the global average was 83 percent ([orbmedia.org](#)). Clothing from natural fibers such as cotton can contribute to the world's pollution overload in a different way; more chemicals are sprayed on cotton than any other crop. In addition, the prints on apparel fabrics are typically made from PVC, phthalates and other harmful chemicals. Up to 8,000 chemicals can be used for dyeing, treating, printing and finishing during the production and processing of textiles ([theworldcounts.com](#)). Designer Stella McCartney, whom an article in the October issue of *Vogue* called the standard-bearer of sustainable fashion, sees the fashion industry as the second dirtiest industry on the planet after oil ([vogue.com](#)).

In addition to the materials, there is the problem of insufficient use. Items of clothing, after all, are durable goods, and yet Rob Opsomer, co-author of the Ellen MacArthur report cited above, estimates that the equivalent of one garbage truck full of textiles gets landfilled or burned every single second of every day of the year ([huffingtonpost.com](#)). The prevalence of cheap, disposable, so-called fast fashion contributes to clothing waste and pollution. Individuals can help by choosing classic styles durably constructed, and wearing them longer. Most of my friends rely on thrift stores or clothes swaps for good quality at affordable prices, and I know young mothers who are twinning with parents of a child one or two sizes above or below their own child's size to reduce the consumption of their families. [Kidizen](#) is one of a number of companies that offer an online marketplace where those parents can list and buy pre-worn

children's clothes. Renting high-fashion apparel is another option for clothes-minded people in higher income brackets. See [Rent the Runway](#) and [The RealReal](#) in this country and the subscription-based clothes sharing platform [YCloset](#) in China.

Not only pollution and waste are common in apparel supply chains, but also significant human rights abuses and poverty. Workers can be exploited at any given stage; it would be difficult to track any single garment through the process to determine its labor history. The Fair World Project calls attention to several companies addressing justice and sustainability issues occurring at one or more of the stages of production: [Alta Gracia](#), [PACT](#), [Fair Indigo](#), and [Patagonia](#). Other initiatives are focused on the supply chain itself: [Fiber Shed](#), [Global Mamas](#), [HAE Now](#), [Marigold](#), [Maggie's Organics](#), [Marketplace: Handwork of India](#), [Mata Traders](#), [People Tree](#), [Under the Nile](#), [Alta Gracia](#), [PACT](#), and [Fair Indigo](#). (Fair Trade USA is not listed here. I'm accepting Fair World Project's critique of weak standards; see that [website](#) for explanation.)

As with clothing, our efforts to secure shelter for our families and institutions within the prevailing system are also damaging our chances for long-term survival. The commercial and residential building sector accounts for 40% of carbon dioxide (CO₂) emissions in the United States every year, more than any other sector ([eesi.org](#)). Much of that number can be traced to the widespread use of cement as a construction material. In 2016 worldwide use of cement was 4200 million metric tons (MMT); US use totaled 85.9 MMT. These figures show a steady upward trend from 2010 when use worldwide and in the US totaled 3,310 and 67.2 MMT, respectively ([statista.com](#)). Substituting wood for concrete and steel in the structural systems of commercial buildings could reduce fossil fuel use and cut emissions of greenhouse gases on average 60 percent, according to a recent analysis by Oregon State University researchers. Although most of the energy used to produce building materials—whether they are wood, concrete or steel—comes from fossil fuels; wood products tend to be less energy intensive. In addition, a portion of the energy for making structural panels, beams and other wood products comes from wood wastes, which can be considered carbon neutral ([oregonstate.edu](#)). But other researchers are finding that cement in use may eventually absorb some of that carbon dioxide (CO₂)—enough to cancel nearly a quarter of the gases released from making it. To make cement, limestone (calcium carbonate) is turned into lime (calcium oxide) by baking it at temperatures above 1000°C. That conversion releases half of cement's total greenhouse gases. The other half comes from fossil fuels used to heat cement kilns. After the cement is in use it can gradually absorb CO₂ through a process called carbonation—especially when it is in the form of mortar, concrete and rubble from demolished buildings. The researchers estimate that between 1930 and 2013, cement has soaked up 43% of the total carbon emitted when limestone was converted to lime in cement kilns ([sciencemag.org](#)).

The ideal building material would come directly from the nearby environment and be put back there after use. There would be little or no processing of the raw material, all the energy inputs would be from sun and wind, it would perform well thermally and acoustically, and it would be cheap. Mud bricks—made by mixing earth with water, placing the mixture into molds and drying the bricks in the open air—come very close to this ideal ([yourhome.gov.au](#)), as does cob, which gets its name from the Old English term for “lump,” referring to the lumps of clay-rich

soil that were mixed with straw and then stomped into place to create monolithic earthen walls (motherearthnews.com). There are US builders currently working in both of these earth building methods. People in central North Carolina are fortunate to have an example of another near-to-earth material being applied in residential construction—hempcrete. The first panelized hempcrete home in North America is featured in “Bringing Back Industrial Hemp” in this issue.

Design is another resource-consuming feature of construction being addressed by architectural activists. This issue features an interview, “Ecologically Inspired Living Places,” with Tim Watson, whose MicroPerch™ houses address the primary error in contemporary design—excess size. The average US home in 2016 had grown to 2,687 square feet, according to the Census Bureau's annual survey of American housing. That census also reported 31 percent of newly constructed homes to be 3,000 square feet or more (nytimes.com). New US homes in 2015 were 1,000 square feet larger than in 1973 (aei.org). The only saving element I can see in these oversized homes is that they can house two generations when the adult offspring can't afford separate living quarters. An encouraging trend amid the big-house extravaganza, however, is the Tiny House movement (padtinyhouses.com). The hempcrete house by architect Mike Spinello referred to above is an example; typical tiny houses have between 100 and 400 square feet of floor space (thetinylife.com).

Following construction, buildings continue to cause harm by using fossil-fuel-sourced electricity. Buildings consume 73% of the electricity generated in the United States, where power plants have been slow to move away from coal, or if they do, they move to natural gas. To replace CO₂ emissions with emissions from methane will not accomplish our climate goals, as a November climate report warns (foeeurope.org). The safe, clean alternative is renewables, and both solar and wind energy generation are coming on fast. Installed solar power worldwide in 2016 increased by about 50 percent (sciencealert.com). Since 2011, cost has declined 67 percent, according to the Solar Energy Industries Association (seia.org). Likewise wind energy generation has taken off, so to speak. Although the 2016 market was somewhat less than 2015, more than 54.6 gigawatts (GW) of power was installed, bringing total globally installed capacity to nearly 487 GW. China, the US, Germany, and India were leaders, with surprisingly strong showings from France, Turkey and the Netherlands (gwec.net).

Food is the third and most important of the three life essentials I'm discussing, and I'm tempted to say, “Don't get me started!” The ideal of nutritious food from fertile soil has been my enduring passion and has received the bulk of my disposable income and much of my physical energy for sixty years. I'm still studying soils and plants and their relationship to human health and survival—learning from the masters of traditional agriculture as well as from the heroes of today's crusades for fair access to real, life-serving food. I support practices that honor the land, based on the work of farmers from cultures that have succeeded in feeding their populations for thousands of years—small-scale family farms integrating wild and domesticated plants, with pastured animals playing a role in fertilization and diet (climatenexus.com and washingtonpost.com). I don't buy food raised on factory farms or support those methods, and I don't claim to be open minded. Industrial agriculture, in my view, is a failure. Agricultural policy is a labyrinth of bad law based on short-sighted science. Modern nutritional advice serves

corporations, not animals' bodies. Proof of this network of failures, in my mind, is not only depleted cropland and ocean dead zones, and not only the prevalence of hunger and obesity, but also the fate of people trying to make a living raising our food. Last year, a [study](#) by the Centers for Disease Control and Prevention (CDC) found that people working in agriculture—including farmers, farm laborers, ranchers, fishers, and lumber harvesters—take their lives at a rate higher than any other occupation. The suicide rate for agricultural workers in 17 US states was nearly five times higher than that of the general population ([theguardian.com](#)). In India over 12,000 suicides have been reported in the agricultural sector every year since 2013. A total of 12,602 persons involved in farming sector—8,007 farmers-cultivators and 4,595 agricultural laborers—committed suicide during 2015, accounting for 9.4% of total suicide victims in that country ([timesofindia.com](#)).

The alternative to industrial farming has been clearly shown from the 1900's by such leaders as Sir Albert Howard in England, J.I. Rodale in the United States, and Bill Mollison and David Holmgren globally through the permaculture movement. The term “regenerative agriculture” is often applied to such methods ([nytimes.com](#)). A white paper offered by [Terra Genesis International](#) describes four levels of regenerative practice. The main goal of the first level is to regenerate soil while simultaneously capturing carbon. The second level aims to grow the health and vitality of whole living ecosystems: increase functional biodiversity, provide wildlife habitat, improve water cycles, repair damaged landscapes, regrow forests, and rapidly regenerate all life systems of a farm landscape. At the third, or systemic level, “Regenerative Agriculture is a way of thinking . . . We as human beings begin to see ourselves as nature itself, understanding that if we seek to develop the landscape we must also develop ourselves. Especially important to grow is our capacity to see and manage the complexity of interdependent living systems, which requires pattern recognition and, eventually, pattern generation.” Systemic level practitioners actively aim for antifragility in their farming systems--a large step beyond resilience,” a way to benefit from disorder and disturbance. The fourth level is Evolutionary Regenerative Agriculture, requiring a deep understanding of the geology, hydrology, ecology, plants, wildlife, and human history of a region in the context of the whole. “This depth of pattern-understanding may take 50 to 100 years to grow on its own. It is usually only found with multi-generational inhabitants of the land in any given place ([terra-genesis.com](#)).”

Readers of Wendell Berry's writings and those who follow the work of Wes Jackson and The Land Institute of Salina, Kansas, will be familiar with those aspirations. While they may sound romantic compared with talk coming from USDA officials and Monsanto executives, aspirational projects show on-the-ground successes as well as vision ([landinstitute.org](#)). Consumers can support life-serving farming practices by buying from soil-honoring farmers, directly or through local farmers markets. I was a vegetarian when my meat had to come from CAFO's (concentrated animal feeding operations) and a vegan when my dairy would have come from conventional dairies, but I don't apologize for eating moderate amounts of animal foods to meet the needs of this body evolved over thousands of years and passed to me by meat-eating ancestors. I'm not advocating any of the trendy packaged “organic” luxuries now flooding the marketplace; my interest is in plain, unprocessed, nutrient-dense foods that build strong bones

and nourish natural immune systems. My interest, to be exact, is in raising this quality of food myself and supporting those who do it as a vocation.

The overall remedy for destructive food, shelter, and clothing production systems is what is being called the circular economy. A circular economy is one in which we keep resources in use for as long as possible, extract the maximum value from them while in use, then recover and regenerate products and materials at the end of each service life (wrap.org.uk). See WRAP's 2015-2020 plan, [*Resource Revolution: Creating the Future*](#).

We must try to alter the direction of destructive public policy, but as we do, we can choose to apply whatever measure of discretion we possess to bring these ideals into the reality of our primary choices.