COMMUNITY ESSAY

Speaking of sustainability: the potential of metaphor

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Introduction

One approach to understanding and promoting sustainable consumption is to get the language right. Not just saying “sustainable” and “conserve” and “green” a lot, but speaking in ways consistent with the imperative of living within ecological constraint. Regarding an agenda for social change, philosopher Richard Rorty (1979) put it pithily that, to paraphrase, cultural change occurs not when people argue well, but when they speak differently.

Here, then, I motivate different speaking by focusing on metaphor, not because metaphors add poetic flourish, but because they have power over how humans think and act. Indeed, although “metaphor has traditionally been viewed as a matter of mere language,” write cognitive linguist George Lakoff and linguistic philosopher Mark Johnson (1980), cognitive science indicates that it is best understood “as a means of structuring our conceptual system and the kinds of everyday activities we perform.” What is more, they argue, “It is reasonable enough to assume that words alone do not change reality. But changes in our conceptual system do change what is real for us and affect how we perceive the world and act upon those perceptions.” And metaphors guide action appropriately to the extent they are grounded in experience, direct and indirect, and fit the purpose at hand—here, getting on a sustainable path.

This essay explores how, through metaphor, proponents of sustainable consumption can shift from a worldview that is linear, mechanistic, reductionist, expansionist, and consumerist to one that is cyclic, organic, complex, constrained and, shall we say, productive or self-generating.

The fact that metaphors are inescapable, that they provide normative interpretations and affect how we act, suggests that new metaphors, ecologically grounded ones, can indeed be constructed. The fundamental shifts now underway—biophysical, economic, political—make such constructions imperative.

Starting Points: Value Orientation

As with any analysis or intervention, where you start has a lot to do with where you end up. Concerns for peace and security led to familiar concepts in international relations—balance of power and national sovereignty, for example—and concerns for economic prosperity led to gains from trade and liberalization. The primary starting points for an ecologically and socially sustainable theory of consumption should include the following:

- Concern for irreversible diminution of the earth’s life-support systems;
- Concern for the consequences of ever-increasing throughput of material and energy as means of satisfying publics and resolving (or avoiding) conflicts; and
- Concern for the injustices of uneven distribution of environmental benefits and harms.

These assumptions are informed by an understanding of the nature of the global environmental problematic, an understanding both biophysical and social. On the biophysical side, sustainability theory should start with phenomena such as threshold and synergistic effects, fundamental indeterminacy, and multiple spatial and temporal scales. On the social side, and in parallel to the biophysical, theory should start with explicit assumptions about human behavior. These should include the human ability to do the following:

- Deal with limited predictability and, hence, the necessity of accepting limited human control of natural systems;
- Engage the environment as life-support system rather than as amenity (or luxury good);
- Make long-term decisions, projecting into the distant past historically, even biogeochemically, and into the far future, including ecologically meaningful futures (e.g., those of nutrient, water, and life cycles).
These concerns and understandings of the environmental problematic are in turn informed by language. Here, what matters is not just words and phrases, but the underlying concepts and ideas, especially those that connect concrete objects (e.g., food and water) to abstract concepts (e.g., health and growth). Among the most significant are metaphors. And what matters is not just the choice of terms, but the choice of what is important.

Lakoff, Johnson, and others who draw on neuroscience, evolutionary biology, and psychology, as well as linguistics and philosophy, show that metaphors are embodied; they connect how we perceive with what we believe. Metaphors help establish a worldview that guides not just how we see, but how we relate to, our environment. Or as philosopher Erazim Kohák (1976) puts it, “A metaphor is a mask that molds the wearer’s face.”

So metaphors are more than rhetorical or poetic floursishes. Because metaphors structure our conceptual system, how we conceptualize “the environment,” what metaphors we use, does matter, especially when it comes to designing policies, educating the young (and old), and structuring people’s lives with analogies and images and expectations. Indeed, metaphors are devices for establishing a society’s norms and principles, from which we get rules and procedures, laws and regulations. They are, in short, institutions.

Metaphors: Getting the Language Right

“Metaphors may be appropriate or inappropriate,” says sociologist Robert Bellah, “but they are inescapable” (Bellah et al. 1991). Getting them right is, among other things, an issue of good theory and good institutional design. What is more, says Bellah, although “we create institutions, they also create us: they educate us and form us—especially through the socially enacted metaphors they give us, metaphors that provide normative interpretations of situations and actions” (Bellah et al. 1991). Good theory with respect to sustainable consumption is good normative theory. And, for that, metaphors of “the environment,” both biophysical and social, must be developed.

Metaphors guide action appropriately to the extent that they are grounded in experience, direct and indirect, and fit the purpose at hand. In the past, it was building a great nation, spurring a vibrant economy, extending freedoms to distant lands. Today, it is reversing the negative environmental trends, reducing and then leveling consumption, and getting on a sustainable path. It is living with a lot less material and energy, structuring our lives from the local to the global as if we have just one planet. It is learning to live within our means, not displace our costs onto vulnerable people.

The fact that metaphors are inescapable, that they “provide normative interpretations,” that they “affect how we perceive the world and act,” and that social theorists have long employed “natural” metaphors (the state as a person or organism; the public as a body; global relations as a system with core and periphery, all in a balance of power) suggests that new metaphors, ecological ones, can indeed be constructed (see Wilk, 2010 in this issue). The critical state of the environment suggests that such metaphors must be constructed. This is, indeed, a normative issue.

The potential power of identifying and constructing metaphors of the environment lies in the following kind of argument: If you believe that “the environment” is best modeled as a machine (or laboratory or store or battlefield), then it follows that policies should be thus and so. But if you believe “the environment” is best modeled as a watershed (or a neighborhood or spaceship) then it follows that policies should be this and that.

So it is not a “my metaphor is better than your metaphor” game that this exercise engenders. Rather it is an “if you believe” contingent form of argumentation, a form that accepts multiple perspectives and, at the same time, makes possible the intervention of a different, or submerged, worldview. What is more, it opens up new vistas on human-nature relations. And if the sustainability metaphors are at least as compelling as the modern industrial metaphors, then a broad swath of people may shift from the technocommercial-militarist-exploitative discourse to a sustainability discourse.

Table 1 identifies dominant metaphors of the environment in the current expansionist, consumerist, fossil-fuel-dependent, debt-laden order. I elaborate on two of them—the laboratory and the threat—then use one of their root metaphors—growth—to advance a concept of “adaptive metaphors.” I then posit metaphors of the environment in an ecologically and socially sustainable order. These are not meant to be definitive but, rather, provocative: I hope they will provoke discursive exploration, applying the criteria of adaptive metaphor in the contemporary context of global ecological constraint.
Table 1 Metaphors of the environment in an expansionist industrial order.

| 1. The machine (nature can be made more efficient, faster, and uniform via the work of rational, atomistic, interest-maximizing actors); |
| 2. The laboratory (nature can be modeled and controlled and new natures can be innovated); |
| 3. The bank (interest accrues automatically and the principle can grow indefinitely); |
| 4. A store (goods and services are available, for a price); |
| 5. A park (nature is preserved, amenities are enjoyed); |
| 6. The frontier (resources are plentiful, many untapped); |
| 7. A threat (nature attacks us so it must be repulsed, vanquished, tamed); |
| 8. The “commons” (nature jointly owned is tragic, requiring a Leviathan or private ownership); |
| 9. A colony (nature is in the periphery requiring resource delivery to the core and waste deposition back to the periphery). |

The Laboratory

One enters a lab, after first noting the warning signs at the entrance, and closes the door, which shuts tight. Inside it is quiet or, at least, the sounds are only those of pumps humming and water gurgling and lab rats squealing. The outside world is gone, as if removed, abstracted away. Everything inside is exactly what the experimenter wants there—the motors and pumps, the wires and chemicals, the rats and feed, all carefully calibrated. Strict measures are taken to banish foreign noises, pesky insects, contaminants. Here “the world” is a piece of the world left behind, but not any piece, as a neighborhood is a piece of a city or a tree a piece of a forest. It is a piece of the components of the outside world, a deliberately isolated piece, a piece that one is to know in great detail, even in its essence. Often such knowledge is then turned to creating a new piece, a chemical, a machine, an organism (a fiber, a fertilizer, a cloned sheep) that never existed in that world outside the door.

The environment as laboratory is thus all about abstraction, reduction, and manufacture. It is about complete understanding of nature’s components, its forces, its laws, all for the purpose of modeling that nature (or piece of nature) and creating a better world, one more intelligible, meaningful, and useful than that in the world “out there.” It is about reducing uncertainty, increasing predictability, about making things safer and more comfortable, more productive and more efficient.

So, in the laboratory metaphor, “the environment” is that which can be closed off; isolated from all else, controlled and manipulated, organized as a source of never-ending new components, new forces, and new combinations, all of which enable a more perfect world for humans, one safer, healthier, more productive, more aesthetic, more comfortable than the unruly world outside the lab, the world our forbears had to bear.

The fundamental problem with this metaphor is that the lab requires the outside world to build its inside world. It reduces a complex, adaptive system with interdependent actors (that dirty, dangerous, uncomfortable world) to its barest elements, elements without context, independently determined, the subjects of immutable, yet ultimately knowable, laws and forces. At the same time, it presumes that, by knowing its constituent parts, those parts and the whole can be controlled, irrespective of their “natural” context, of the interactive, synergistic, and threshold effects, of cascades of events and emergent properties, in short, a world of limited predictability and limited controllability. What can be controlled in an actual laboratory and what can be created de novo is somehow not “the environment” (or lab). It presumes, ultimately, that the benefits of what can be controlled (for higher yields, stronger buildings, greater comfort) will be greater than the risks of that which cannot be controlled (cumulative and synergistic effects, emergent properties, strategic interaction). In the end, the outside world is consumed to produce the inside world, concluding, logically, in the denigration of the “natural,” nonlaboratory world. An extreme example is geoengineering the earth to deal with climate change.

The implicit premise in the laboratory metaphor of the environment—i.e., that everything can be controlled (and should be controlled)—can never be tested. The experimentation and manufacture themselves cannot be put in the laboratory and reduced and modeled and manufactured. All of this is to say that the laboratory metaphor cannot have all extraneous variables controlled for, because all ultimately rest on a certain faith, namely, that human ingenuity conquers all. But it is only a faith, subject to no scientific scrutiny (where would the lab be?). It is a faith that could have been sustained in a world of little human impact, of endless frontiers, of harmless expansion, of zero-risk experimentation, of winners everywhere, losers nowhere. But that world is not the...
world of the present, if it ever really existed. Today’s world is full; its key biophysical variables (population, soil, freshwater, biodiversity) are at their extremes. Its key social variables (income gap, power imbalance, disproportionate harm) are straining societal integrity. The laboratory doors no longer seal closed, the walls are more porous than anyone imagined, the flow of water is uneven and nobody knows why, the chemicals are acting strange, but no one can find contaminants, the rats are mutating at unprecedented rates, and the experimenters are competing among themselves to get grants, publish first, and prove their worth. Everyone is looking inside for answers.

A Threat

Humans have always lived with floods, earthquakes, landslides, wildfires, disease, tornados, hurricanes, and tsunamis. The very same environment that brings great riches, or at least sustenance, brings threats, and such threats can only be partially anticipated and partially prevented, if at all. A threatening environment is an uncertain one; yet, because it is largely uncontrollable, it is for some merely capricious, an environment that engenders a certain acceptance, if not resignation and fatalism: we try to keep out of harm’s way, build structures on high ground, require hand washing, restrict campfires. And we build dikes, clear fire lanes, and reinforce our buildings; that is, we try to keep the threat at bay, for a while anyway. But when it comes, it comes. That’s life, that’s nature (see Hess, 2010 in this issue).

Others do not see it that way. Whether newcomers, transients, or victors, they see such an environment not just as threatening (in some sense, all peoples do), but as anomalous, as the exception for which the rule—a well-behaved environment—must be proved: we build dikes as high as is necessary, construct our buildings impervious to tremors and winds, manage our forests to be fireproof. And if another hurricane comes, we will attack it, knock it off course, blunt its force. Same with solar flux—mirrors in space. This is where a capricious environment becomes a challenging environment, a security threat, an enemy. Here the environment challenges our way of life, in fact our very lives. It is a menace to be guarded against, a foe to vanquish. We decide what the ideal environment is, indeed the “normal environment,” and go to work constructing that norm, shifting tectonic plates, high-energy storms, tinderbox forests be damned.

As a community’s conception of the environment shifts from the “natural” yet capricious, on the one hand, to the life supporting yet threatening, on the other, “normal” life becomes that which has no flood, no fire, no disease, no hurricane. Baseline living is an even flow of water, like water in a pipe; it is a forest that does not catch fire, like a fire-protected building; it is a community where disease does not spread, like a germ-free hospital; it is a state that resists incursions, like a fortress.

Taken to the extreme, the threat metaphor justifies all kinds of incursions, even against “the environment.” In much of the sustainability debate, as progress continues to elude, advocates readily shift metaphors, from the medical (intensive care), say, to the military (“international war on the greenhouse effect,” as former American President Bill Clinton once put it). The military metaphor presumes an “other,” a foe to be vanquished, an attacker to be deterred, a heathen to be civilized. It cannot deal with the proposition that, with a problem as complex and pervasive as unsustainable consumption, all societies and all individuals are implicated, especially those in the high-consuming, industrial North, precisely from where the military metaphors tend to emanate.

Another common construction of the threat is “us,” that is, individuals, as in, “we have met the enemy and it is us.” This construction individualizes what is inherently a collectively generated problem. It says each of us chooses to consume resources and emit wastes. At one level this is, of course, true. But it ignores how powerful institutional forces—norms, laws, regulations, political favors, media attention—shape those choices, how they make oil cheap, packaging ubiquitous, chemical experimentation on the environment normal, and atmospheric deposition costless (Bellah et al. 1991; Maniates, 2002).

How, then, should “the threat” be construed? If the problem is systemic, a proposition all serious students of the global environmental problematic seem to agree on, then the threat itself must be construed systemically. The first-order system of concern is the biophysical, the life-support system of humans and other species, the material system upon which all other systems, material and nonmaterial (such as finance and law) rest. The second-order system of concern is social, the mutual understandings, norms, symbols, rituals, and rules that hold a society together. As with all systems, the biophysical and social each has its set of goals, each seeming independent of the other. In fact, the project of industrialization can be characterized as creating and maintaining precisely that illusion—as a grand effort to separate human functioning from the constraints of nature. Metaphors that do the opposite, that have ecological content and connect humans to nature, social systems

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1 See Cohen (2010) for many more examples of leaders in the United States and the United Kingdom, left and right, using military metaphors with regard to climate change.
to biophysical systems, are in order. Moreover, connecting such metaphors to practices that self-consciously attempt to reconnect would move consumption onto a sustainable path. Among these practices are farmers markets, local food systems, and independent renewable energy production.

**Growth**

If there were a single metaphor (or a root metaphor for metaphors such as those in Table 1) that best captures unsustainable societies—past and present—it would be *growth*. Its root is both physiological and agrarian: children grow and crops grow. Their growth is unambiguously a good thing. A growing child is a healthy child, a budding contributor to the household economy and larger society, a potential head of the household and perpetuator of the family line. It is not hard to imagine the linguistic coevolution of the species and the positive connotations of growth.

For the agrarian, crop growth is essential to survival, and not just immediate survival. It is essential to surviving the season and, with storage, the year and, with seed and root stock, future years, even generations. What is more, crop growth offers the possibility of surplus with its attendant increase in survival chances, in population, and in overall wealth and power.

In these two contexts, then—childhood and farming—growth is clearly desirable. Applied to livestock, soil, skills, knowledge, art, and freedom, it serves a valuable linguistic function: it says more of these things is good, right, worthy of investment. But like all metaphors, its applications are limited. To delineate those limitations for the purpose of both critiquing contemporary environmental discourse and, most importantly, constructing alternative metaphors, I distinguish *effective, powerful, and adaptive* metaphors.

An *effective* metaphor evokes the desired image and suggests a desirable path. Here, growth of children and crops is good and so growth of other things is too. An effective metaphor becomes a *powerful* metaphor when its applications arouse high valence motives—e.g., survival, parental protection, national security, social justice—and the metaphor can be stretched without resistance. So, for instance, growth in the economy strengthens the nation (even if the incomes and health of many of its citizens decline). And those left behind still champion economic growth. As this example suggests, though, a powerful metaphor can facilitate societal consensus and mobilization at the same time it exploits the powerless and steers society over a cliff.

A powerful metaphor is thus analogous to a powerful weapon, which can repulse invaders and vanquish heinous rulers, but can also do great harm to innocents. More generally, powerful metaphors are like powerful technologies; they can be used for good or ill. The real issue is how they are used and how they are constrained. That is, to be appropriate to a broad set of social needs, including long-term survival on this single planet, metaphors must have built-in limits.

Finally, an *adaptive metaphor* does several things at once regarding deliberate action:

- It evokes the desired image and suggests a desirable path;
- It is persuasive, prompting useful behavior;
- It suggests its own limits; and
- It resists stretching beyond its limits.

The growth metaphor would be adaptive, therefore, only if it suggests its own limits and resists the all-too-human tendency to stretch useful concepts and ideas. Fortunately, we can locate those limits in the growth metaphor’s own roots. First, continuous growth is a good thing for a child, but not for an adult (think obesity, cancer). Continuous crop growth is a good thing only if, as harvest time approaches, that growth goes to the seed and fruit, not the roots and stalk (think corn, tomatoes). What is more, these two cases have built-in limits. A child stops growing in height and other dimensions. A crop dies back with the first frost. Unchecked expansion is not an issue over time. As long as the child (not the adult) and the crop (not the inedible parts) grow, they are healthy and they bring health to those who nurture them. This growth-as-maturation metaphor, so applied, is effective, possibly powerful, and certainly adaptive. It is, as specified, a potential metaphor for sustainable practice.

However, and this is the second point, the growth-as-maturation metaphor is misapplied when the target object (or process or system) has no built-in brakes. For an individual or a society, growth in knowledge or artistic expression is limited by the time that can be diverted from subsistence and defense. But growth in money has no natural limit. Nor do technologies like the automobile and the spliced gene. Or if they do, the time lags and displacement of costs are so great that, for practical purposes they operate as if they have no limits. Put in terms of complex adaptive systems, they have positive, self-reinforcing feedback loops, but no negative, dampening feedback loops. And, third, if growth occurs for some and at the expense of others it is also unlikely to be sustained. The feudal lord demands higher

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2 For an illustration of such stretching and its rhetorical effects, see my “Efficiency: A Brief and Curious History,” in Princen (2005).
yields but takes the gains for himself, engendering yet more resistance from the peasants.

I nominate additional metaphors for sustainability in Table 2. Once again, these are not meant to be definitive, only provocative and suggestive. Some are more adaptive than others. But they may well be useful starting points, along with growth-as-maturation, from which a language of sustainability can emerge. It is in such language that understanding and action takes place. Or, to return to philosopher Richard Rorty (1979), fundamental cultural change occurs not when people argue well, but when they speak differently.

The planet’s life-support system is changing, fundamentally. For that, fundamental cultural change is needed, urgently. One ingredient is new language. Indeed, we need to speak, and act, differently.

References

Bellah, R., Madsen, R., Sullivan, W., Swidler, A., & Tipton, S. 1991. The Good Society. New York: Knopf.

Cohen, M. 2010. Is the UK preparing for “war”? Military metaphors, personal carbon allowances, and consumption rationing in historical perspective. Climatic Change Online First: January 16.

Hess, D. 2010. Sustainable consumption and the problem of resilience. Sustainability: Science, Practice, & Policy 6(2):26–37. http://sspp.proquest.com/archives/vol6iss2/1001-005.hess.html.

Kohák, E. 1976. Of dwelling and wayfaring: a quest for metaphors. In L. Rouner (Ed.), The Longing for Home. pp. 30–46. Notre Dame, IN: Notre Dame University Press.

Lakoff, G. & Johnson, M. 1980. Metaphors We Live By. Chicago: University of Chicago Press.

Maniates, M. 2002. Individualization: plant a tree, buy a bike, save the world? In T. Princen, M. Maniates, & K. Conca (Eds.), Confronting Consumption. pp. 43–66. Cambridge, MA: MIT Press.

Princen, T. 2005. The Logic of Sufficiency. Cambridge, MA: MIT Press.

Rorty, R 1979. Philosophy and the Mirror of Nature. Princeton, NJ: Princeton University Press.

Wilk, R. 2010. Consumption embedded in culture and language: implications for finding sustainability. Sustainability: Science, Practice, & Policy 6(2):38–48. http://sspp.proquest.com/archives/vol6iss2/0912-040.wilk.html.

Table 2 Metaphors of the environment in an ecologically and socially sustainable order.

| Metaphors of the environment in a sustainable world would have ecological content and connect human action to the workings of natural systems. They would be adaptive to the extent that they evoke the desired image, suggest a desirable path, prompt useful behavior, suggest their own limits, and resist stretching beyond these limits. Examples and their implications include the following: |
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| 1. **Spaceship earth** (the environment is the life-support system of humans and other species); |
| 2. **Planet earth** (there are limits to growth); |
| 3. **The watershed** (human action happens within a landscape in which there is an upstream and a downstream); |
| 4. **A scale** (human-nature interactions are in balance and have the right size); |
| 5. **Saving the seed** (restraint in short-term gain leads to long-term security); |
| 6. **A network** (interactions occur among complex, adaptive systems with emergent properties and limited predictability, natural and human); |
| 7. **The tide** (the world is cyclic, ever renewing, ever changing, punctuated by extreme events); |
| 8. **A homestead** (one’s home provides food and shelter and is embedded in a larger community); |
| 9. **A gift** (no one owns or controls the sources of the life-support system); |
| 10. **The national banking system** (systems are not only complex and changing, but they exhibit nontangible elements such as trust and ecological integrity). |