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## Top 10 Myths about Sustainability

### Even advocates for more responsible, environmentally benign ways of life harbor misunderstandings of what "sustainability" is all about

By Michael D. Lemonick

When a word becomes so popular you begin hearing it everywhere, in all sorts of marginally related or even unrelated contexts, it means one of two things. Either the word has devolved into a meaningless cliché, or it has real conceptual heft. "Green" (or, even worse, "going green") falls squarely into the first category. But "sustainable," which at first conjures up a similarly vague sense of environmental virtue, actually belongs in the second. True, you hear it applied to everything from cars to agriculture to economics. But that's because the concept of sustainability is at its heart so simple that it legitimately applies to all these areas and more.

Despite its simplicity, however, sustainability is a concept people have a hard time wrapping their minds around. To help, *Scientific American Earth 3.0* has consulted with several experts on the topic to find out what kinds of misconceptions they most often encounter. The result is this take on the top 10 myths about sustainability. And after this introduction, it's clear which myth has to come first....

#### **Myth 1: Nobody knows what sustainability really means.**

That's not even close to being true. By all accounts, the modern sense of the word entered the lexicon in 1987 with the publication of *Our Common Future*, by the United Nations World Commission on Environment and Development (also known as the Brundtland commission after its chair, Norwegian diplomat Gro Harlem Brundtland). That report defined sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." Or, in the words of countless kindergarten teachers, "Don't take more than your share."

Note that the definition says nothing about protecting the environment, even though the words "sustainable" and "sustainability" issue mostly from the mouths of environmentalists. That point leads to the second myth....

#### **Myth 2: Sustainability is all about the environment.**

The sustainability movement itself—not just the word—also dates to the Brundtland commission report. Originally, its focus was on finding ways to let poor nations catch up to richer ones in terms of standard of living. That goal meant giving disadvantaged countries better access to natural resources, including water, energy and food—all of which come, one way or another, from the environment. "The economy," says Anthony Cortese, founder and president of the sustainability education organization Second Nature, "is a wholly owned subsidiary of the biosphere. The biosphere provides everything that makes life possible, assimilates our waste or converts it back into something we can use."

If too many of us use resources inefficiently or generate waste too quickly for the environment to absorb and process, future generations obviously won't be able to meet their needs. Says Paul Hawken, the author (his latest book is *Blessed Unrest: How the Largest Movement in the World Came into Being, and Why No One Saw it Coming*) and entrepreneur (he's a co-founder of the Smith & Hawken garden tools company) who helped to found the sustainability movement: "We have an economy where we steal the future, sell it in the present, and call it GDP [gross domestic product]."

If people continue to pour carbon dioxide (CO<sub>2</sub>) into the air, for example, we won't necessarily exhaust resources (there's plenty of coal still in the ground), but we will change the climate in ways that could very likely impose huge burdens on future generations. The same, of course, goes for the poisonous by-products other than CO<sub>2</sub> from all kinds of human activity, from manufacturing to mining to energy generation to agriculture, that get dumped onto the land and into streams, oceans and the atmosphere.

The nonenvironmental rationales for sustainability get a little squishier when we talk about intangibles, such as the beauty of nature or the value of wilderness. "In wildness is the preservation of the world," wrote Henry David Thoreau; the national parks movement that began in the U.S. at the end of the 19th century and has since spread internationally springs from that idea. In modern terms, because humans evolved in a nontechnological world, we seem to need some connection to nature to be content. That concept is tough to prove scientifically. Nevertheless, says Nancy Gabriel, program director at the Sustainability Institute in Hartland, Vt., "If you look at Western society, you have huge rates of depression, isolation, [and] people who are disenfranchised. I think that reconnecting to the land is an important way of reestablishing a basic level of happiness." That kind of intangible connection has led towns, cities and states all over the U.S., but especially in built-up areas, to preserve land for open space.

A related but separate myth is....

**Myth 3: "Sustainable" is a synonym for "green."**

Although there's a fair amount of overlap between the terms, "green" usually suggests a preference for the natural over the artificial. With some six billion people on the planet today, and another three billion expected by the middle of the century, society cannot hope to give them a comfortable standard of living without a heavy dependence on technology. Electric cars, wind turbines and solar cells are the antithesis of natural—but they allow people to get around, warm their houses and cook their food with renewable resources (or at least, a much smaller input of nonrenewables) while emitting fewer noxious chemicals.

It's probably more difficult to see nuclear power as sustainable. Unlike the other alternative energy sources, it has long been anathema to environmentalists, largely because of the problem of storing radioactive waste. But nuclear reactors are also a highly efficient source of power, emit no pollutant gases and—with some types, anyway—can be designed to generate minimal waste and to be essentially meltdown-proof. That's why Patrick Moore, a co-founder of Greenpeace, has become a nuclear booster and why many other environmentalists are beginning—sometimes grudgingly—to entertain the idea of embracing nuclear. Calling it green would be a stretch. Calling it sustainable is much less of one.

**Myth 4: It's all about recycling.**

"I get that a lot," says Shana Weber, the manager of sustainability at Princeton University. "For some reason, recycling was the enduring message that came out of the environmental movement in the early 1970s." And of course, recycling is important: reusing metals, paper, wood and plastics rather than tossing them reduces the need to extract raw materials from the ground, forests and fossil-fuel deposits. More efficient use of pretty much anything is a step in the direction of sustainability. But it is just a piece of the puzzle. "I deal with the people who run the recycling program here," Weber notes, "but also with purchasing, dining services, the people who clean the buildings. The most important areas by far in terms of sustainability are energy and transportation." If you think you are living sustainably because you recycle, she says, you need to think again.

**Myth 5: Sustainability is too expensive.**

If there is an 800-pound gorilla in the room of sustainability, this myth is it. That's because, as Gabriel observes, "there's a grain of truth to it." But only a grain. "It's only true in the short term in certain circumstances," Cortese says, "but certainly not in the long term." The truth lies in the fact that if you already have an unsustainable system in place—a factory or a transportation system, for example, or a furnace in your house, an incandescent lightbulb in your lamp or a Hummer in your driveway—you have to spend some money up front to switch to a more sustainable technology.

In general, governments and companies can take that step more easily than individuals can. "Over the past seven years," Cortese explains, "DuPont has made investments that have reduced its greenhouse gas emissions by 72 percent over 1990 levels. They've saved \$2 billion." The Pentagon is determined to cut its energy use by a third, both to save money and to reduce its dependence on risky foreign oil supplies.

**Myth 6: Sustainability means lowering our standard of living.**

Not at all true. It does mean that we have to do more with less, but as Hawken argues, “Once we start to organize ourselves and innovate within that mind-set, the breakthroughs are extraordinary. They will allow us to achieve greatly superior rates of resource productivity, which in turn allow us to be prosperous, fed, clad, secure.” Moreover, he and others maintain that the innovation at the heart of sustainable living will be a powerful economic engine. “Addressing climate change,” he says, “is the biggest job creation program there is.”

**Myth 7: Consumer choices and grassroots activism, not government intervention, offer the fastest, most efficient routes to sustainability.**

Popular grassroots actions are helpful and ultimately necessary. But progress on some reforms, such as curbing CO2 emissions, can only happen quickly if central authorities commit to making it happen. That is why tax credits, mandatory fuel-efficiency standards and the like are pretty much inevitable. That conclusion drives free-market evangelists crazy, but they operate on the assumption that wasteful use of resources and the destruction of the environment is without cost, which is demonstrably untrue.

To cite just one example, economic devastation is very likely under even the mildest plausible climate change scenarios, in the form of disruptions to agriculture from shifts in rainfall patterns and growing zones; densely populated coastal areas will be rendered unlivable as sea level rises, and so on. Yet the price currently being charged to people who add greenhouse gases to the atmosphere is zero. Putting a per-ton tax on carbon emissions would be wildly unpopular, but it would for the first time account for the real costs of unsustainable energy use.

Free-market purists also argue that with respect to the depletion of natural resources, rising prices will automatically push people into more efficient behavior. True enough—but the transition can be painful and disruptive. The primary reason U.S. automakers are in such trouble is that they have been depending for years on high-profit, gas-guzzling SUVs. When the price of oil shot up last year, the market for big cars plummeted (gas prices have only come down since then in the face of a worldwide recession, which hasn't helped the auto industry). So car buyers may have changed their behavior, but only at the cost of potential disaster for some of America's biggest companies and their employees.

Still, rising energy prices have had the effect of again galvanizing research into wind, solar and other alternatives—and if you leave economic disruption aside, we can at least count on car companies to make more efficient vehicles and on utilities to find more sustainable sources of energy. But that outcome may reflect another myth....

**Myth 8: New technology is always the answer.**

Not necessarily. During his presidential campaign, Barack Obama made the tactical mistake of pointing out that proper tire inflation could save Americans millions of gallons of gasoline through better fuel economy. The Republicans ridiculed him, just as they did President Jimmy Carter for appearing on TV in a sweater during the energy crisis of the late 1970s. Both Carter and Obama were right, however (California's Republican governor Arnold Schwarzenegger has called for proper tire inflation as well).

In other words, sometimes existing technology can make a huge difference. Sometimes it takes a creative business model. Israeli entrepreneur Shai Agassi, for example, wants to electrify the world's car fleet—widely acknowledged as a big step toward cutting down carbon emissions—not by inventing a battery that gets 200 miles on a charge but by inventing a better system for letting drivers go as far as they want without recharging. His proposal, which has been adopted on a pilot basis by Israel and Denmark, would create battery exchange stations along highways, analogous to the gas canister exchanges that people now use for barbecue grills. What do you do if you are out on the road and your battery is running low? You pull into a station, your dead battery is swapped for a fully charged one and you're on the road again in a few minutes.

“He's delivering distance, not better batteries,” says Mark Lee, CEO of the London consulting firm SustainAbility. “There's an Italian utility that's selling its customers hot water, not energy to heat water. It's a different way of measuring, and it gives the company an incentive to be more efficient so it can be more profitable.”

**Myth 9: Sustainability is ultimately a population problem.**

This is not a myth, but it represents a false solution. Every environmental problem is ultimately a

population problem. If the world's population were only 100 million people, we would be hard-pressed to generate enough waste to overwhelm nature's cleanup systems. We could dump all our trash in a landfill in some remote area, and nobody would notice.

Population experts agree that the best way to limit population is to educate women and raise the standard of living generally in developing countries. But that strategy cannot possibly happen quickly enough to put a dent in the population on any useful timescale. The U.N. projects that the planet will have to sustain another 2.6 billion people by 2050. But even at the current population level of 6.5 billion, we're using up resources at an unsustainable rate. There is no way to reduce the population significantly without trampling egregiously on individual rights (as China has done with its one-child policy), encouraging mass suicide or worse. None of those proposals seems preferable to focusing directly on less wasteful use of resources.

**Myth 10: Once you understand the concept, living sustainably is a breeze to figure out.**

All too often, a choice that seems sustainable turns out on closer examination to be problematic. Probably the best current example is the rush to produce ethanol for fuel from corn. Corn is a renewable resource—you can harvest it and grow more, roughly indefinitely. So replacing gasoline with corn ethanol seems like a great idea. Until you do a thorough analysis, that is, and see how energy-intensive the cultivation and harvesting of corn and its conversion into ethanol really are.

One might get a bit more energy out of the ethanol than was sunk into making it, which could still make ethanol more sustainable than gasoline in principle, but that's not the end of the problem. Diverting corn to make ethanol means less corn is left to feed livestock and people, which drives up the cost of food. That consequence leads to turning formerly fallow land—including, in some cases, rain forest in places such as Brazil—into farmland, which in turn releases lots of carbon dioxide into the atmosphere. Eventually, over many decades, the energy benefit from burning ethanol would make up for that forest loss. But by then, climate change would have progressed so far that it might not help.

You cannot really declare any practice "sustainable" until you have done a complete life-cycle analysis of its environmental costs. Even then, technology and public policy keep evolving, and that evolution can lead to unforeseen and unintended consequences. The admirable goal of living sustainably requires plenty of thought on an ongoing basis.

<http://www.sciam.com/article.cfm?id=top-10-myths-about-sustainability&print=true>