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# The Buzz about Sustainability

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# The Buzz about

By John S. Farnsworth

From energy suppliers to university campuses, from agriculture to the packing industry, folks are talking about “sustainability.” So what are they really talking about? And are they just talking the talk?

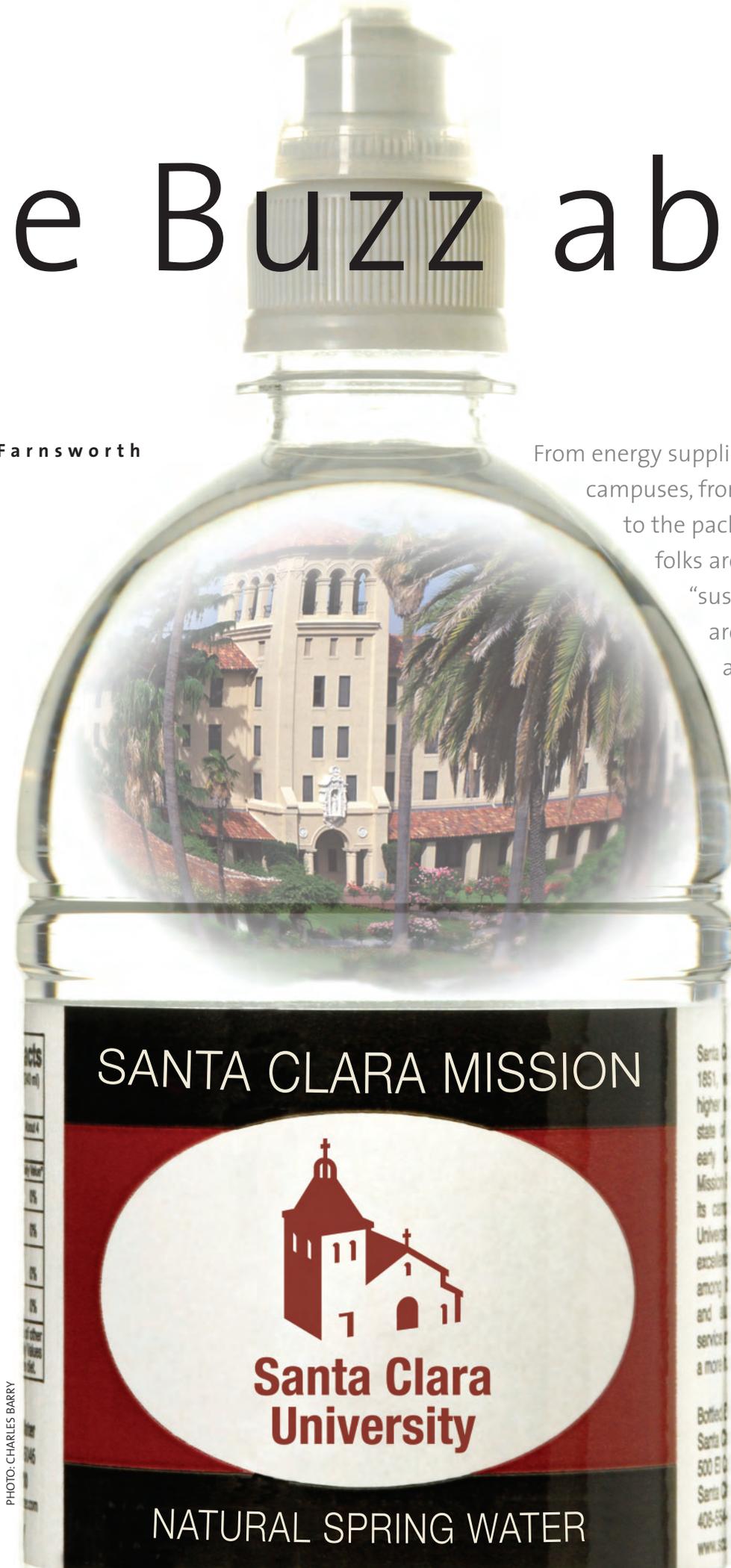


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SANTA CLARA MISSION



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University**

NATURAL SPRING WATER

# Sustainability

I wear sweater vests, I never split infinitives, I trim my beard close, and I read a poem at the beginning of every class. More to the point, as a member of the English faculty at a distinguished university, I distrust any word that had not been coined by the time my father—himself formerly a professor at a Jesuit university—completed his undergraduate studies.

So what am I doing as the faculty director of a Residential Learning Community (RLC) organized around the theme of “sustainability”?

In the past 18 months, the university that employs me hired its first sustainability coordinator, held its first Campus Sustainability Day, inaugurated a sustainability-across-the-curriculum program, has looked at ways in which sustainability might serve as a key theme for upper-division courses in the new Core Curriculum, and approved a Sustainable Living Research Project at the undergraduate level. Even this fine magazine has decided to dedicate this issue to the theme of sustainability.

My students would tell you that sustainability has buzz. And that’s a good thing, as I understand it.

When my RLC—they call themselves “Cypress”—began planning for our participation in Campus Sustainability Day, the first question, naturally, was what we should do.

I interrupted this proceeding with the insightful observation that, prior to asking what we should do, it might be appropriate to ask what we hope to accomplish.

There was a respectful, uncomfortable silence until a junior named Lacey Schauwecker cleared her throat and said, “I don’t think everybody knows what sustainability means.”

I asked whether she could propose a definition of sustainability, and without a blink she recited, “To care for the needs of the present without compromising the ability of future generations to care for their own needs.”

By general acclamation it was decided that Lacey should become our Sustainability Day liaison, and the leadership team further decided that our goal for the day would be to acquaint the student body with Lacey’s definition. *The entire student body.* And so it came to pass that we purchased organic, earth-tone, fair-trade T-shirts for the entire RLC upon the chests of which Lacey’s definition was printed in non-toxic ink.

The more cynical among my readers might observe that our quest to educate the University community was typically American: We’d decided to accomplish an

objective via the purchase of a commodity. In other words, we’d decided to consume. But despite such cynical observations I must assert that the T-shirts were cool. So cool that when the dean of the College of Arts and Sciences saw me wearing mine on Sustainability Day, he inquired whether he might purchase one.

How cool is that?

**When I was in college**, it was generally believed that those of us who weren’t destined to be killed in Vietnam would die horrible, protracted deaths at the hands of radiation poisoning. Present-day collegians agonize about decreasing biodiversity, deforestation, habitat loss, desertification, topsoil degradation, greenhouse gases,

the ozone hole, and, of course, global warming.

Whereas the Woodstock-era fears generated by the Cold War were never to come to fruition, the iPod-era fears generated by the looming ecocrisis might not be avoidable.

**Whereas the Woodstock-era fears generated by the Cold War were never to come to fruition, the iPod-era fears generated by the looming ecocrisis might not be avoidable.**





# The Buzz about Sustainability

My own worry is that people out there in the “real” world feel that sooner or later we here in academia will come up with a solution to the ecocrisis. But here’s the problem: For the greater part of the past decade, the academic community has been trying to convince the real world that what we’re seeing in our crystal balls is frightening. Now, finally, you believe, and at last you’re asking what can be done.

Oops.

**The problem here** is that we don’t really know which activities are truly sustainable because questions of sustainability are always a matter of scale. It’s probably a large enough planet to indefinitely sustain a few dozen families who only want to drive sport utility vehicles to church on Sundays. If, however, 6 billion people decide to drive SUVs to work five days per week beginning next September, our atmosphere won’t be able to sustain air-breathing life forms for more than another decade. If, alternately, everyone in the United States began to drive a vehicle that got 40 mpg, 34 million tons of carbon dioxide would be removed from the atmosphere every year compared to current rates of pollution. The planet’s carrying capacity, in terms of human population, is always a function of the activities in which the population engages.

Using Lacey’s definition of sustainability, we can conclude that our planet might well be able to sustain a population of 6 billion humans living an agrarian lifestyle in a pre-industrial mode where petroleum products are not consumed. Add in the sort of technology that produces greenhouse gases, and the planet might only be able to sustain a population of 3 billion people for more than a century or two. Three billion is pretty much where we stood the day my father was born.

Here’s why I’m wringing my chalk-covered hands: My grandfather was part of the first generation in all of human history to live during a time when the world population doubled during its lifespan. Thanks to the post-war baby boom—which I would be hard-pressed to complain about since I was born at the boom’s loudest moment—the global population doubled during my father’s lifetime as well. Although the rate of

population growth has slowed considerably during my own years on this planet, if I live as long as I’d prefer to live, the tally could easily reach 9 billion people before I’ve breathed my final breath. (This is based on the medium-level predictions by the United Nations Department of Economic and Social Affairs, Population Division.) While there’s near-consensus that this sort of growth is not sustainable, we’re beginning to realize that this level of population will not be sustainable either, not in the ecological long run.

Even if population levels were to stabilize tomorrow, which won’t happen with anything even near the current birth rates simply because humanity has developed a knack for living longer, we’d still face a planetary sustainability problem because of the growing level of affluence throughout the world community. China and India, two enormous population centers, are growing in affluence at a tremendous rate. What happens when the Chinese populace decides to trade in their bicycles for SUVs?

Ecocrisis.

**Lest you consider me an alarmist**, consider the fact that in India, China, and the United States, there are currently plans to build another 850 coal-fired power plants,

which by 2012 will pump another 2.7 billion tons of carbon dioxide into the atmosphere each year. (Not to mention significant amounts of sulfur dioxide and nitrogen oxide as well.)

The American dream was a marvelous preoccupation as long as it only infected Americans. For better or worse, the dream was exported beyond the shores of our continent, and the moment globalization set in, the dream transmogrified into a nightmare. Once the desire for increased affluence became the driving force in the world economy, the environment stood to pay the price. When everybody wants a yacht, and every yacht has to have teak or mahogany paneling, the rainforests are in danger because the technology is readily available to harvest the timber. A hundred years ago, when there were only a couple billion people on this planet, when teak had to be felled with hand tools and when only the wealthy few could afford yachts, yachting might have been a sustainable practice. Today, with more than 6 billion people wanting the good life,

**If 6 billion people decide to drive SUVs to work five days per week beginning next September, our atmosphere won’t be able to sustain air-breathing life forms for more than another decade.**





# The Yuck Factor

when the profit from a single tree more than covers the price of a chainsaw, and when even college professors can afford to own yachts thanks to the availability of boat mortgages at low interest rates, yachting becomes problematic.

The simple formula to figure this all out was proposed by Stanford professor Paul Ehrlich:

$$\text{environmental impact} = \text{population} \times \text{affluence} \times \text{technology}$$

Those of us who study Ehrlich's calculus call it the IPAT formula, and it makes us a bit twitchy. Consider the fact that 12 million internal combustion boat engines were manufactured in or imported into this country last year for purposes of recreational boating. Now try to visualize, for a moment, the amount of metal and other raw materials that goes into the manufacture of 12 million engines each year. Imagine further, if you will, the amount of energy it takes to manufacture and transport these engines. Now try to estimate how much carbon these engines will spew into the atmosphere during their lifetimes. Now before you close your eyes and attempt to sleep, consider the fact that an equal number of engines will be introduced into our national ecosphere next year, and the following year, and the year after that, and....Yikes.

**And this is small potatoes** compared to the billions of metric tons of carbon being dumped into the atmosphere by automobiles or coal-fired power plants.

Yet there is reason for hope; in many ways we've finally turned the corner on public awareness of such concerns as climate change. I wish I could attribute this emergent grasp of the issues to my colleagues in the classroom, but Al Gore's Oscar-winning film seems to have done most of the heavy lifting. Regardless, I'm reading more encouraging news in the papers each day. For example, Wall Street finally seems to have recognized that global warming might be bad for business. The pending TXU Corp. buyout, which at \$44 billion will be the biggest corporate buyout in history, would scrap construction of eight of 11 planned coal-fired plants. The company's coal-fired power plants currently dump 55 million tons of carbon into the atmosphere each year; the new plants would have more than doubled that. And it's not only

Mold, methane, and enteric fermentation. Rates of decomposition. And a lot of pictures of dead things. It's not "CSI." It's the Joy of Garbage.

Going far beyond "why recycling is good," the Joy of Garbage is a course taught

by instructor Virginia Matzek that covers the science and consequences of what humans consume and discard. Students focus on two types of waste: items that rot, decompose, and break down; and items that do not.

Matzek is director of campus and community programs for the Environmental Studies Institute, which integrates natural and social sciences with the University's core values to promote sustainability. For the Joy of Garbage, Matzek takes advantage of what she calls the "high 'yuck' factor." Students get up close and personal with the conceptual side of the course through field trips to local environmental service destinations like landfills, sewage treatment plants, and electronic waste recycling facilities.

"It's a very mundane act, to throw something away," Matzek says. "Hardly anybody knows where it goes. Many of the students have never given it the slightest thought." Others might be poorly informed or confused about environmental issues, lacking a scientific background and comprehensive sources of information.

In addition to the technical aspects of decomposition and waste processes, the class explores social justice issues that come out of environmental matters: that landfills and recycling centers are frequently located in poorer neighborhoods; or that American Indian tribes, as sovereign nations, can store nuclear waste for the U.S. government. In one early class project, students must locate the landfills or recycling centers in their own hometowns, then compare the results with neighborhood census data.

Then there are the larger issues tied to recycling—financial and environmental costs of collection, sorting, processing, and production—that make even the feel-good act of recycling a more complicated issue.

—Sarah Stanek



# The Buzz about Sustainability

Wall Street getting into the act; while the feds might not be leading the way, sustainability has increasingly become a regional concern, with a consortium of five western states, including California, agreeing to develop a target for reducing greenhouse gas emissions. Nine eastern states have already joined forces to try to limit greenhouse gas emissions by power plants.

**My students, I'm happy to report,** are even beginning to get the message about recycling. A few of them engaged in a dumpster-diving project—they called it a “trash audit”—in order to monitor the number of recyclable beverage containers being thrown into the trash from the residence halls. The project took longer than they'd anticipated, and in order to continue with their research they were forced to show up in my class without having changed clothing. It was all in good fun, but the pervasive stench of the researchers was not nearly as offensive as their discovery that our resident student body was throwing away more than 2,000 recyclable bottles per day.

This becomes a matter of scale. If we extrapolate from our own semi-enlightened stu-

dent body to the total resident population of American colleges and universities, we can estimate that more than 4 million bottles are being dumped into the dormitory dumpsters of American colleges *every day*. That's just the dormitory residents, folks; this statistic doesn't include the students living off-campus, their siblings, the faculty, those serving in the armed services, undocumented workers, people living on pensions, or the alumni for whom this article was composed.

The budding environmentalists who put up with my lectures are fabulous, a strange mix of poets, environmental studies majors, unaffiliated tree-huggers, and the occasional confused individual who signed up for my course because she didn't know it was going to deal with sustainability. These scholars, by the end of any given quarter, begin to grasp the scope of the problem facing humanity, the problem of scale. If we're only talking about 2,000 trashed bottles per day, the ecosystem can certainly handle it. Even 4 million bottles per day is probably not going to make a difference in the long run. But here in America we're almost at the point where we're disposing of one ton of “waste” products per person per year, and that only counts the products making it into landfills. Even that could be sustainable, on a continent this large, were it not for the fact that more than 300 million of us, currently, call ourselves Americans.

It's not about trash, ultimately, or about recycling. It's about consumption. It's about how much “stuff” it takes to make us happy, and about the energy consumed in bringing that stuff to us.

**Take a tomato, for instance.** In my great-grandfather's day, a tomato was something delightful you consumed between mid-summer and the first frost, but only if you'd been diligent enough to plant this commodity in your garden the previous spring. In my grandfather's day, mason jars were available at the local hardware store in which to preserve surplus tomatoes, which meant you could enjoy a mushy version of a tomato during the winter months. If Grandpop ever worried about the amount of energy required by the canning process, it was only because he had to chop the wood to produce that energy in Grandmom's stove.

Today we can purchase fresh tomatoes year round because they're grown in hothouses in Mexico prior to being transported by jet and/or refrigerated truck to your local supermarket. The energy-per-tomato debt is enormous, but we've become so affluent that we don't notice the pinch, even in the face of escalating energy prices.

## The Penstemon Project

**The mission:** promote sustainability across the curriculum. **The method:** bringing on board faculty from disciplines as diverse as business and mathematics, civil engineering and religious studies—not to mention biology. Meet the Penstemon Project.

The project kicks off this June, with five Santa Clara faculty members from the Environmental Studies Institute (ESI) and other departments helping to conduct two days of workshops for 20 SCU faculty interested in developing new courses, revising current courses, or incorporating issues related to sustainability.

The trainers leading the way at SCU are Sherry Booth, senior lecturer in English and co-director of the Cypress RLC; John Farnsworth, lecturer in English and ESI and co-director of Cypress; Dennis Gordon, professor of political science and executive director of international programs at SCU; Leslie Gray, associate professor of political science and ESI—and fresh off a Fulbright in Burkina Faso; and Virginia Matzek, director of campus and community programs for ESI.

The Penstemon Project—which takes its name from a wild-flower—is an outgrowth of similar projects around the nation under the aegis of the Association for the Advancement of Sustainability in Higher Education.



In this modern age we don't tend to think it's all that spectacular to eat a fresh tomato in February. Indeed, we might consider the salad we construct with fresh February produce to be a healthy, natural treat. I suspect, however, that within the lifetime of my current students they're going to have to start making tough decisions about such things as February tomatoes, desert golf courses, internal combustion engines, coal-fired power plants, and maybe even magazines such as the one you currently hold in your hands.

**In October 2005, researchers at Vanderbilt University announced a discovery** that just might lead to a light bulb that could reduce world-wide electrical consumption by 50 percent. Right now, students at Santa Clara are competing with 19 other universities in a Solar Decathlon to pioneer new ways of exploiting renewable energy resources. This past quarter, my own students wrote articles for publication on a range of topics from how to make the Olympics more sustainable to why rifle ranges should switch to "green bullets."

But there's a dark side as well. As I write this, up here in my penthouse office on the 11th floor of Swig Hall, someone a few floors down just threw away a plastic bottle in which he'd purchased, of all things, water.

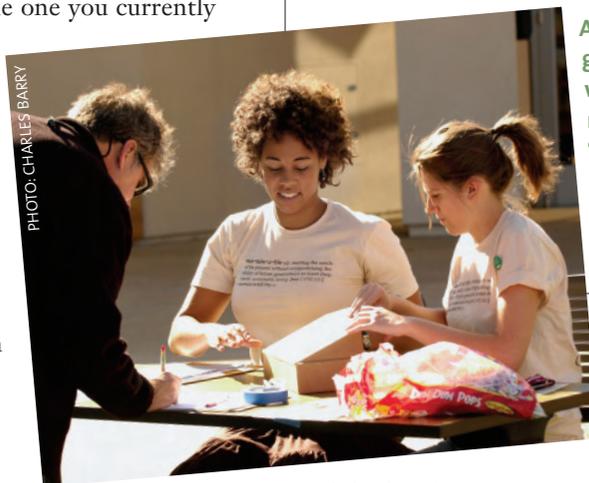
What we're trying to do at Santa Clara is develop a culture of sustainability. We're becoming convinced that the educated person of the past, who would never split an infinitive, must evolve into the educated person of the future, who will never toss a "used" water bottle into the trash. At the risk of sounding harsh, only an ignorant person would do such a thing here in academia in the year 2007, and it's time our students learn this lesson.

My students are still trying to figure out what a culture of sustainability will look like, but I can tell you a few things already. To begin with, you won't just discuss issues of sustainability in classes offered through the Environmental Studies Institute. You'll discuss relevant concerns in economics classes, in physics and chemistry, in mechanical engineering, in anthropology and political science and business and in the fine arts—and yes, even in English. More to the point, in the modern university, a culture of sustainability will necessarily be an interdisciplinary culture; our planetary ecosystem can no longer afford the luxury of academicians who are so specialized they can only be understood by colleagues in their own disciplines.

## Sustainable RLC Life

Fall quarter 2007 will see the launch of the Sustainable Living Undergraduate Research Project (SLURP). Directed by John Farnsworth, the SLURP will involve undergraduates working for credit on yearlong research projects designed not only to probe but also to create sustainable culture. Students will work collaboratively from within their own specialties, everything from marketing to engineering, attempting to form an interdisciplinary team that itself models what a sustainable on-campus residential community might look like.

At the same time, the Cypress RLC gets a new name as it joins forces with the Delphi RLC: Residents of the newly-christened Cyphi will stake out "sustainability and the arts" as their turf, with creativity and a love for the environment a part of the merger.



Sign the sustainability pledge: At the table, students Rachelle Stow, left, and Liza Dadiomov.

While there's not yet consensus on this, I'm personally convinced that a culture of sustainability will necessarily be a culture in which spirituality is integral. America has evolved into a society where overconsumption is the norm. During my lifetime, the average size of stand-alone homes being built in this country has more than doubled while homelessness has increased dramatically. The gap between overconsumers and underconsumers is now greater than it has been at any time in the history of our nation. The ecocrisis is not just a matter of greenhouse gases, toxic waste, and endangered species; it's a crisis of spirituality where entire populations measure their self-worth in terms of their own consumption patterns.

If my students are encouraged to consider themselves to be better than their global peers because they grew up in larger homes, or because they drive cars with more powerful engines, or because they wear a certain kind of blue jean that's far more expensive than some other form of native garb, then we've lost any hope of achieving environmental sustainability. Ultimately, the easy part will be teaching that fellow on the seventh floor that it's better to utilize a reusable water bottle than to trash a recyclable one. The hard part will be teaching him that the key to our collective planetary happiness will be to reduce his levels of consumption. 

— John S. Farnsworth is a specialist in environmental writing and serves as a lecturer in both the Department of English and the Environmental Studies Institute.

