

The 6th Annual
SUSTAINABILITY 2007 CONFERENCE
UC/CSU/CCC

Sustainability: “The ability to meet the needs of the present without compromising the ability of future generations to meet their own needs” from the Brundtland Commission. “All sustainability really means is leaving the world a better place than we found it” – Paul Hawken.

Many are unaware of what “sustainability” means, let alone what it means to live in a sustainable manner. It is vital that the understanding and education of this word is spread.

SUSTAINABLE FOOD SYSTEMS

A desire and value of the current food system has made the quantity of food and variety more important than the quality of food. As a result we have a complete disassociation of where the food we put in our bodies comes from and the fresh, healthy, taste it should have. Many of us have never visit a farm and don't understand the process of growing food. Most cooks today have become no more than box openers for foods that arrive sometimes weeks before it is eaten.

When ever possible, take clubs, kitchen staff, and any other group or organization of people, to visit local farms to help repair the connection to the foods we eat. Promote the “why” as well as the “how”, to eating from local organic farms.

A sustainable kitchen requires a complete change in structure. Having an organic selection or station will not make the visionary change needed, it will only make minimal impact while further contributing to the idea that more options, and there fore quantity, is of higher value than quality. A sustainable kitchen needs an entire local/organic menu, silverware and ”house” plates, wood stirs (or none at all), non-prepackaged napkins, straws (or better, no straws) to reduce packing material, a pre and post consumer food waste compost system, and other such details.

The food menu will be smaller, with fewer options. The options there are, however, will be the same sort of food in a regular kitchen. There will be pizza, but the dough, cheese, and other toppings will be local and organic. The menu will change according to what is in season and available from the local farmers.

Some of these areas of change will result in a drop in cost and some will result in a raise, this is, however, an insignificant overall difference in the greater scheme of things.

[Energy Efficiency and Green Business: Resources for the Sustainable Kitchen](#)

Food Service Technology Center (fishnick.com) – the source for all things relating to energy efficiency in food service including rebates, lists of efficient appliances, energy calculators, and kitchen ventilation (design guides).

Green Business Program (greenbiz.ca.gov) – portal to California’s green business programs. A statewide Green Business Network is slowly taking shape with leadership from the Bay Area and San Diego.

US Green Building Council (USGBC.org) – information on the LEED program including commercial interiors (CI) and existing buildings (EB) which relate to dining services.

Green Seal (greenseal.org) – independent, non-biased organization that creates standards and certifies products such as institutional-strength cleaners and floor care products.

Flex Your Power (fypower.org/com/bpg/) – a general Best Practices Guide for food service created in partnership with the Food Service Technology Center. (Downloadable in pdf format from the web).

About Organic: (information from CCOF)

Organic refers to methods of growing and processing foods that rely on the earth’s natural resources. Pests and weeds are managed using earth-friendly methods such as beneficial insects and mechanical controls. Organic farmers work to build natural nutrients in soil, which help fertilize plants without the need for synthetic fertilizers. Organic processors and handlers package food that is natural from beginning to end.

Products labeled “certified organic” have been grown and processed according to strict standards governed by a third-party certifier such as California Certified Organic Farmers (CCOF, www.ccof.org). CCOF annually inspects all farms and facilities to ensure that no harmful chemicals have been used for at least three years, foods are processed using ecologically-friendly methods, and that growers and processors keep detailed records of their practices. All certifiers must enforce the standards set by the USDA’s National Organic Standards, which were modeled after CCOF’s high standards. Products must include the name of the certifier when using “certified organic” labeling.

The National Organic Standards implemented in October 2002 by the U.S. Department of Agriculture require that all foods labeled “organic” must be certified by a third-party certifier such as CCOF. In other words, products after that date labeled “organic” are in fact “certified organic”.

Since the U.S. Department of Agriculture released the National Organic Standards for organic food, effective on October 21, 2002; all products labeled “organic” must comply with those Federal Standards. For more information, or to view the Standards in their entirety, visit the National Organic Program of the U.S. Department of Agriculture at: www.ams.usda.gov/nop. Also, check out the International Federation of Organic Agriculture Movements (www.ifoam.org).

Labels such as: “No Spray,” “Pesticide Free,” and “Residue Free,” does NOT ensure that your food is organic. Claims like “pesticide free” usually mean the edible parts of a crop

have not been sprayed with harmful chemicals. However, synthetic fertilizers, insecticides and fungicides may have been used to grow the food. Check out Pesticide Action Network, www.panna.org.

The USDA National Organic Standards prohibit the use of GMOs at any stage of organic production. Since GMO labeling is not in place, choosing organic is the only way for consumers to ensure that their food was produced without GMOs. For more information on GMOs, the nationwide organic regulations, CCOF's Supporting Membership program, or organic food and agriculture, visit the CCOF site listed above.

Interesting Facts:

Pesticides used in conventional agriculture accumulate in the human body and cause cancer, birth defects, decrease fertility, neurological damage, and other health problems. (Pesticide action network, 2004)

The use of antibiotics in animals is linked to antibiotic resistant strains of food poisoning bacteria and many cause reduced effectiveness of related antibiotics used to treat humans. (US general accounting office 1999)

US family farmers typically lose money each year. Their average income declined by over 60% in 2001 alone. Suicide is the leading cause of death for farmers. (USDA & American Public Health Association 2002), prevent this from happening and support your local farmers.

Giant livestock farms, which can house hundreds of thousands of pigs, chickens, or cows, produce vast amounts of waste. In fact, in the United States, these "factory farms" generate more than 130 times the amount of waste that people do.

According to the U.S. Environmental Protection Agency, livestock waste has polluted more than 27,000 miles of rivers and contaminated groundwater in dozens of states. (Natural Resources Defense Council)

As much as 8% of the weight of a supermarket chicken is not meat, but a "fecal soup" from water used in processing chickens into meat. (Factory Farms)

Pesticides have been linked to low sperm counts, sterility, birth defects, miscarriages, and brain development problems. Want to support brain function – think before you eat and choose local organic options.

Producing one kilo of cut veal produces as much greenhouse gas emissions as traveling 220 kilometres (137 miles) by car. www.terradaily.com

In California today, you may save more water by not eating a pound of beef than you would by not showering for six months. John Robbins in *The Food Revolution: How Your Diet Can Help Save Your Life and the World*.

Community Agroecology Network (CAN): CAN is a non-profit organization linked to educational institutions and non-governmental organizations that are working together to support sustainable farming practices, economic justice, and conservation practices at the community level. CAN seeks self-motivated people who want to engage and explore social and environmental issues. CAN interns earn academic credit while living in Central America! Contact info: mail, info@communityagroecology.net, website, www.communityagroecology.net, phone, (831)459-3619.

People and resources:

Alex Moore, Growers Collaborative Regional Manager (Southern California region). The Growers Collaborative is a farm-to-institution venture (most helpful for the middle size farm, not so much the small family farms). www.growerscollaborative.org

Aliza Wasserman, Institutional Outreach Coordinator, Community Alliance with Family Farmers (CAFF). CAFF helps bring fresh local produce to hospital food systems in California. CAFF supports sustainable, small and family-scale agriculture. Aliza, with support from Physicians for Social Responsibility and Kaiser Permanente, provides technical assistance for hospitals and schools to incorporate, evaluate, and communicate local, seasonal, nutritious, cost-effective and low-carbon produce. www.caff.org

Dina Izzo, Marketing Coordinator, Agriculture Land Based Training Association (ALBA). Dina manages ALBA Organics, a distribution company that works with Stanford University, University of California Santa Cruz, Sutter Maternity and Surgery, and Dominican Hospital. www.albafarmers.org

Kate Tierney, Vice President of Sales, United Natural Foods Incorporated (UNFI). UNFI is the largest national distributor of Organic and Natural products in the US. Kate also works on truth in labeling efforts in conjunction with the Campaign to Label Genetically Engineered Foods. www.unfi.com

David Visher, California Program Manager, Food Alliance. David is responsible for establishing and developing Food Alliance presence in California and serving producer and handler of clients. He has organized many education programs and conferences including four California Farm Conferences. He developed and produced Tasting of Summer Produce in Oakland and Sacramento, providing farmers direct access to chefs and specialty buyers. David explained to us that there are three levels of certification; the 1st is by the farmer (no third party), the 2nd is by the customer (who they decide to buy from), and the 3rd is by a third party checking the standards of the farmer. The first two levels run the risk of “green washing”, a farm/company lying about their green/organic practices. www.foodalliance.org

Jan Perez, Research Associate, Center for Agroecology & Sustainable Food Systems (CASFS). Jan conducts and assists with research exploring issues related to direct marketing, consumer interests, and social justice issues in sustainable agriculture. She is currently engaged in a multi-organization research and outreach project to understand more about the potential of farm-to-institution efforts for increasing farm viability and sustainability. www.ucsc.edu/casfs

John Turenne, President & Founder, Sustainable Food Systems LLC. Sustainable Food Systems is a consulting and technical services company whose mission is to help organizations consider social, ecological and delicious differences in their business through the way they think about food. John developed the original design, development and implementation of the internationally recognized *Yale Sustainable Food Project*. John advised that institutions should not reinvent food systems; that they should talk to others who are already have experiences to share. He also said that foods on a menu have the same recipes; the change is really only with individual *types* of ingredient to fit local in-season selections. www.sustainablefoodsystems.com

Roberta Anderson, Business Development Manager, Food Alliance. Roberta builds opportunities and relationships between socially and environmentally responsible farmers and the many food businesses that value their products. She explained the

importance of institutionalizing food standards, reasoning that it is the only way for a stable program. Roberta sets up farmer relations from the bottom up. Another person brought up the issue of who to trust, pointing out that the Food Alliance gets their money from the very people they are suppose to examine and approve and that the FA would not want to go against that income. www.foodalliance.org

Ida Shen, Executive Chef & Assistant Director, Cal Dining (UC Berkeley). Ida stresses the visionary aspect and advises not to mix means and ends.
<http://caldining.berkeley.edu/>

FOOD SERVICE & WASTE REDUCTION

Speaker James Boushka: Dining Services, UC Davis (jboushka@ucdavis.edu)

Key points:

Composting and diverting waste that already exists makes the biggest difference.

Most waste in any dinning hall comes from packaging and uneaten food.

Changing products to those that result in less waste or that are compost able make a huge difference. For example; plastic coffee stirs to silver spoons for dine-in and wood stirs to go. Control purchasing so that less food goes uneaten.

Offer education about composting and food/dinning waste to include people in the purpose of the changes in the dinning hall/cafeteria. By doing this you gain support, cooperation, and enthusiasm from the students.

Start the changes in the kitchen area; a separate bin (w/ a biodegradable bag) for organic/compost able waste, purchase supplies that arrive with less packing, and other such changes. UC Davis uses the compost waste services of Jepson Praire Organics.

Speaker Candy Berlin: Dining & Facilities Program Coordinator, UC Santa Cruz

Key points:

Remove pre-wrapped products like straws. If complete removal is not possible, then purchase the same product but without individual wrapping (straws that arrive in boxes without wrapping on each individual straw).

Santa Cruz, instead of composting their waste, pulps their waste. They have a somat pulper machine. They use this machine for pre and post consumer waste. The excess pulp goes to local farms and worm gardens. Someone else suggest that because this method of pulping requires so much energy and water, that the method of dehydrating waste to pallets is a better option.

Santa Cruz also suggests that rather than a program like Food Pro to monitor student food preference, campuses survey the students' wants via verbal student input. This recommendation came after a student pointed out that they did not want the cafeteria to offer french fries every day because they would then get them every day, even though they knew how bad it was for them.

Speaker Max Kee: Associated Students Recycling Program, Student, CSU Chico
(www.csuchico.edu/sustainablefuture/)

Key points:

Chico collects an average of 80 gal of pre-consumer food scraps every day. Max uses an electric mini car to pick up waste from the dining hall Monday – Friday. Two days a week this waste goes to the on-campus compost bins and three days a week the waste goes to a local farm.

Aside from their active composting, they have 3 verma bins for which they offer free worms and education to the students.

Their recycling program includes more than one education coordinator and a compost coordinator (whose job includes: watering the garden, composting food, and distributing the soil made).

Max noted that one of the challenges the program faced was their relations with the kitchen staff. The kitchen staff plays a key role in making sure the right material is going to the compost piles, so their education (about what is and is not compost able) and relationship with the recycling program is vital. Taking the staff to visit the compost site and garden (if there is one on campus) is highly recommended.

WATER: CLEAN WATER PROGRAM

Speaker Marty Laporte: Manager, Water Resources and Environmental Quality, Utilities Department, Stanford University

Key points:

Stanford has a water plan with Maddaus and stay below a 3.033 mgd SFPUC allocation. They have found that their highest water users are from student residential (internal), local residential, and faculty/staff (external), and have made many changes accordingly. Marty also pointed out that one of their small-size drain sculpture fountain was recorded using 457,365 gal of water in July of '04 alone. It is best not to have fountains, but if there must be one, avoid basins (check their web site for more detailed info).

For their new buildings (piping too difficult to change on existing buildings), Stanford has displaced high quality water in toilets and decorative/sculpture fountains with CEF water. This is water from a cooling blow-down tower (their tower can reuse the water about 10 times before “blow-down”).

Other changes include: their kitchens to have pre-rinse spray nozzles, gauges on all water cooling systems (expensive, but saved a lot of water), and the use of water-misers.

Lary Hoffman, a guest with Marty who was asked to add input from his experience, commented changes with student housing. He has supervised the change of low flow shower heads and faucets, the replacement of high flow toilets to low flow models (the 1.1/1.6 dual flush models worked best, certain others required multiple flushes), etc. Student housing landscape was upgraded and they are in the process of replacing turf borders. Lary noted that an outreach of education to the student residence is necessary to get better cooperation with any/all changes. They complain about the changes less when they understand the purpose behind the changes.

Speaker Stephanie Barger: Founder and Executive Director, Earth Resource Foundation

Key points:

Stephanie pointed out that, although most plastic drink bottles and other such plastics are recyclable, only about 2% of the plastic purchased is actually being recycled. Plastics are causing major polluting problems in our oceans and water supplies. She also notes that upstream manufacturing creates the most waste.

Despite what many fear, there are actually more, not less, job opportunities available in greening and recycling.

Stephanie also spoke about the pharmaceutical industries effect on our water and the extreme effects that the drugs that end up in our water is having on us and the makeup of our fish/wildlife.

The most needed [immediate] changes include ending subsidies for waste. By giving cities money for their waste, the city encourages waste over recycling, zero waste programs, and other, more sustainable, practices. In addition to the end of waste subsidies, charging people for their waste and not their recycling (while monitoring their recycling practices), as done in several other countries, will encourage people to shop with waste reduction in mind and after purchase recycling. Resource recovery in parks will make up for the risk of a rise in illegal dumping that follows a rise in land fill fees.

Another better practice was cleaner production and EPR, and a service for toxic waste bin pick-up, (there were other practices mentioned that I was not able to get down, but she recommended us to check out www.ZWIA.org and www.earthresource.org).

On the topic of biodegradable plastics, Stephanie says that, while they are better than petroleum based plastics, they are not the best answer for waste reduction. Biodegradable plastics only biodegrade in a controlled compost system, they do not break down under ground, sitting in the sun, or in water. She mentioned a friend who 8 years ago put a biodegradable plastic cup in his salt water fish tank and it's still there! Another warning about biodegradable plastics, such as corn based plastics is that they require more land (and the destruction of) to make more corn crop (for, in the end, more waste and not for human food consumption).

STUDENT AFFAIRS: STUDENT GOVERNMENT

Speaker Becca Jones: student, Materials Science, UC Berkeley

Becca recommends a permanent forum for grad students to raise ES concerns. This allows for institutionalizing issues, thereby making any program designed to work on those issues more stable. This can be achieved by making the necessary changes in the GA (graduate assembly) bylaws.

Visit: www.pledgegreen.com and <http://ga.berkeley.edu/>

Speaker Courtney Voss: Alumna, CSU Chico

Advises getting involved with your school's AS (Associated Students). The biggest benefit gained by this is access, access to systems, the school President, the student body (via student board), and to money.

Courtney also suggests speaking on environmental issues and proposals in a language your audience understands. Remember that you are trying to reach out to those less informed about the problems occurring around us, and by speaking over their head you will not impress them, only turn them off to your ideas.

Speaker Roy Campaway: Director, Student Union, UC Los Angeles

For changes that cost the consumer more money (like fair trade coffee), Roy advises letting the people know why they are paying more and include them on the education so that they are more accepting of the changes.

Speaker Chuck Rodgers: Environmental Advisor, Associated Students at Butte College

Their AS Board has an Environmental Advisor position and their school provides 100% sugar cane paper.

Chuck advises those leaving an office to train and introduce the new officer to people who the leaving officer has created relationships with so that project cooperation (etc.) does not suffer.

Ask that professors of different subjects work in sustainability knowledge into their curriculum. For example, ask an English professor to have their students write an essay on the meaning of environmental sustainability.

Educational ideas for students at school: Energy Fair and an organic/local farm lunch once a month (with education on the foods, etc.).

Speak to non-profit organizations around the city for funding, help/partnerships, and education. Invite them to examine and assess your school's practice on a particular issue and ask for their advice. Inviting them to sponsor education at your school is beneficial for both parties; they get to advertise their non-profit cause, and your school organization gets a better, bigger, more supported event.

WASTE REDUCTION & RECYCLING: MOVING TOWARD ZERO WASTE

Speaker Mike Carey: Recycling Coordinator, Orange Coast College

Orange Coast College's recycling program is a successful, well established and long running system that also interacts with the local public community (they have a public drop-off and CRV buy-back center).

With a strong staff that includes 3 full time and 18 part time employees, they have self-serving program that makes an annual profit of about \$35,000. Aside from the public drop-off and on-campus recycling, this profit is also aided by an annual Surplus Auction for used electronics. Another of their projects is bike refurbishing.

The college's hauling expenses are about \$51,000 annually. They have 19 3-yrd bins on campus that are picked up 5x/week and 4 roll off bins, generating an annual ~1,100 tons. All their waste is sent to MPF and their annual diversion rate is 67.3%.

Speaker Christa Jones: Zero Waste Coordinator, R4 Recycling Program, UC Davis; and Speaker Erin McNichol: Student, U.S. History and International Relations, UC Davis

For dinning halls, Christa and Erin suggest: source reduction, in relation to purchasing; encourage consumption reduction; buy in bulk and avoid individual condiments (i.e. ketchup packets); serve finger food; and serve smaller portions (they can always go back for more in a dinning hall).

EFFECTIVE STRATEGIES FOR ELECTRONIC WASTE

Speaker Sue Chiang: Director, Pollution Prevention Program, Center for Environmental Health, sue@cehca.org

Sue spoke on the major problem that we are experiencing with the lack of responsibility that is being taken with electronics. There are ~400 million computer units scrapped per year in the US alone.

One large computer monitor has 8lbs. of lead and the making of a PC monitor requires over 4,300 chemicals. There is also the added concern of flame retardants found in electronics as well as furniture, bed matrices, etc. As a result, these flame retardants are being absorbed in the human body and have been found in high amounts in women's breast milk.

We currently do not have effective facilities for e-waste recycling. Some of it is currently being taken to prisons, where prisoners are breaking down e-waste in poor conditions without proper chemical protection (check out www.prisonactivist.org). Another 50-80% of e-waste is exported, most of which to places like Guiyu, China and Nigeria, Africa. The people of these places who break down the electronics do not have any physical protection while they do things like burn electric wires to get out the copper, use hammers to take off the screens of computer monitors, and use acid baths to extract gold (the remaining sludge from the acid bath is dumped into nearby rivers). BAN reports that 60% of other countries imported e-waste comes from the US and Canada.

Although there is a claim that a majority of our electronics are being exported for reuse in underprivileged areas, the fact is that our electronics are typically not compatible with the plugs/sockets, etc., of other countries (most blow out when they try to use them). For reasons such as this, those electronics (those claimed to be for reuse) then become their waste.

One of the many changes that must occur to make change is for CA to require a higher responsibility on the electronic producers. For a purchasing guide on the producer quality (Dell has "gold" production), visit www.epeat.net. Encourage your institution to pledge for certain electronic standards and practices (the list of US signers: http://www.computertakeback.com/the_solutions/recyclers_map.cfm). For more information about Pledge, visit: <http://www.ban.org/pledge1.html>).

Speaker Cathy O'Sullivan: System-wide IT Contracts, UC Office of the President

Cathy uses the preferred "cradle to cradle" standard for purchasing, and says that the UCs' policy should require that they meet the EPEAT standards (minimum of bronze). The institutions should also require producers to take back products and expect the producers to have a good recyclers-pledge reputation (all packing material must be 100% post-consumer, etc.).

An institution should practice "internal recycling", where, for example, high-tech computer from laboratory's (when replaced) then are to offices of the UC that can then make use of them (rather than every department replacing out-of-date systems with brand new computers).

For more information, check into: Electronics Recycler's Pledge of True Stewardship, and WEEE (European standards).

TRANSPORTATION

“Bikes are the most energy efficient transportation devices ever invented” (Worldwatch Institute: <http://www.worldwatch.org/node/4057>). Because of issues such as climate change, national security, air pollution, and rapidly diminishing oil supplies, our nation’s top environmental and economic priority should be working away from the use of fossil fuels. The public can make a difference by changing how we get around by technologies and fuels already in existence. When biking is not an option, organize carpools, telecommuting, phone meetings, and purchasing items online. When you look for a new job, consider the distance from where you live in relation to the means of transportation available to you.

Instead of buying cars based on occasional needs rather than the daily needs (most SUVs are for a single occupant commute), buy for its primary use and rent or borrow a different car when something larger is needed (a practice that is much more economic and environmentally efficient).

Aside from hybrid vehicles, the following non-hybrid models also offer excellent fuel economy: Toyota Yaris (37 combined mpg), Toyota Corolla (36 combined mpg), Honda Fit (35 combined mpg), Kia Rio/Rio 5 (33 combined mpg), Hyundai Accent (33 combined mpg). These cars are much less expensive in upfront costs. Of course buying used has the added environmental consideration of the extreme negative manufacturing impacts when each new car is built. The used market has a large car selection, including the Toyota Echo and Corolla, Honda Civic and Insight, and Chevrolet Metro – all getting over 35 mpg.

Electric-only and plug-in hybrids, although the technology has been around for decades, will be available in the next couple years. Current plug-in electric cars are available now for a relatively low price, but are only for neighborhood commuting due to their low maximum speed. Soon, however, such models as the Javlon XS500, reaching a maximum speed of 80+ mph, will be available.

RESOURCES: fossilfreeby33.org, Traffic Solutions Online: www.trafficsolutions.info, energy-efficient cars: <http://www.greencars.com>, Department of Energy: www.fueleconomy.gov, EPA Green Vehicles Guide: www.epa.gov/greenvehicles, Hybrid vehicles: www.hybridcars.com, Biodiesel: <http://www.epa.gov/air/caaac/mstrs/ciampa.pdf>, National Biodiesel Board: www.biodiesel.org, Plug-in America: www.pluginamerica.com, Department of Energy: www.eere.energy.gov, State of California: www.driveclean.ca.gov/en/gv/home/index.asp.

INTERESTING ECO FACTS:

One ton of recycled paper uses: 64% less energy, 50% less water, 74% less air pollution, saves 17 trees and creates 5 times more jobs than one ton of paper products from virgin wood pulp.

Since Ireland placed a tax on plastic bags, the revenue of millions of Euros has been poured into recycling facilities.

A gyre in the North Pacific has a mass of floating plastic garbage the size of Texas.

There are now more SUVs and trucks than cars on the road in the U.S.

Researchers at the Univ. of Chicago found that the average American diet is responsible for 1.5 tons of greenhouse gas emissions annually, compared to a vegetarian diet.

In the Brazilian Amazon, a total of 16.5% of the forest (230,000 square miles, an area nearly the size of Texas) was affected by deforestation by 1988.

Every 5 MPH you drive over 60, you're paying about an additional 30 cents per gallon.

Much of our electronic waste gets shipped to developing countries so that they can suffer the leaching toxins while trying to recover reusable materials from it.

In 2005, plastics accounted for about 12% of the trash generated by Americans, and about a third of it was recycled.

My own actions may produce negligible effects, but multiplied by millions change can happen!

5% of the world's population live here in the U.S. and we own 30% of the world's cars, boy, are we successful!

"The greatness of a nation and its moral progress can be judged by the way its animals are treated. I hold that, the more helpless a creature, the more entitled it is to protection by man from the cruelty of man." –Mohandas Ghandi

It is now illegal to throw batteries in the trash in California, though probably few people know this!

Bicycles are the most efficient method of transporting a human, at about 35 calories of energy per passenger mile, while walking uses about 100, and cars use about 1860 calories per mile.

Every mile per hour that you drive faster than 55 MPH, your fuel economy goes down by 2%. So at 70, you get close to half the miles per gallon than you would at 50 MPH!

One kilowatt-hour of electricity = drying your hair 15 times. One kilowatt-hour of electricity = between 1 and 2 lbs. of CO₂ emitted.

Anthropocene: A new term to suggest the time period in earth's history, from the late 1700s, when the human footprint began to grow to a monstrous size.

BOOK & VIDEO LIST

Books: *The Upside of Down* by Thomas Homer-Dixon, *Planet U* by Michael M'Gonigle, *Silent Spring* by Rachel Carson, *The Ecology of Commerce* and *Natural Capitalism* and *Blessed Unrest* by Paul Hawken, *Ishmael* by Daniel Quinn, *Collapse* by Jared Diamond, *The Nature of Design* by David W. Orr, *The Hidden Connections* by Fritjof Capra, *Ecological Literacy*, Zenobia Barlow (Bioneers), *State of the World 2005, 2006, 2007* by World Watch Institute, *Cradle to Cradle* by William McDonough & Michael Braungart,

Limits to Growth by Dana Meadows, *Beating The Food Giants* by Paul A. Stitt, and *The Food Revolution*, by John Robbins.

Videos: *The Power of the Sun*, *Exporting Harm*, *Power of Community: How Cuba Survived Peak Oil*, *The Future of Foods*, *Our Synthetic Sea*, *Oil on Ice*, and *An Inconvenient Truth*.