Studio!Sus

A guide to practical sustainability in Cambridge and at MIT

Simpler.
Smarter.

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an introduction

We at MIT's Students for Global Sustainability (S/GS) originally conceived the idea for this project in March of 2004 during the annual meeting for the World Student Community for Sustainable Development (WSC-SD, www.wscsd.org) in Göteborg, Sweden. S/GS is one of six member communities of the WSC-SD. The conference serves as a research exchange for students doing work in the broad realm of sustainability, but also as a way for students of each member university to share insights and project ideas. One member university, ETH-Zurich, started a publication about sustainability called Studio!Sus, which is now in its fourth edition. Inspired by this example, we have created our own Studio!Sus, with the goal of integrating the abstract concepts of sustainability into our everyday lives in Cambridge.

As is witnessed by the breadth of topics presented in this publication, there are many tangible ways for concerned individuals to live sustainably. Some use their buying power as consumers to change what type of products are offered (**organic + local food, ecolabeling, dining sustainably**). Some focus on the social aspects of sustainability through community involvement (**community service**). Some take advantage of the many environmental and sustainable development resources offered by different departments and centers at MIT (**public service center, LFEE: education**). Some join a student group or a conference which focuses on these issues (**student groups, youth and sustainability**). Some try to reduce the amount of pollution and waste generated by their daily activities (**transportation, worm composting**). Some focus on designing more environmentally-friendly buildings in which to dwell (**green architecture local; green architecture**). Some view educating others as a way to influence mass behaviour (**editorial: education**). Maybe one of these aspects will strike a chord in you, or lead to other approaches to putting sustainability into practice.

Whatever the case may be, this publication is living proof of the connectivity of all aspects of sustainability. Studio!Sus itself we hope will become a collective effort of many of the member communities of the WSC-SD. Many thanks go out to the authors, staff, and interviewees of this first edition all of whom feel passionately about the issues presented. And may you, the reader, find this publication useful as we all try to figure out our place at MIT and in the larger world community.

Elke Hodson
Supervising Editor

community service

by: **Christine Ng**

When I first arrived at Cambridge, Massachusetts, from California, I was eager to feel at home in my new community. During my first few weeks as an MIT graduate student, I quickly developed a strong sense of camaraderie with my classmates, yet I was still feeling like a visitor to the Cambridge/Boston area. Having done community service in high school and in college, I began looking for local volunteer opportunities, with the dual purpose of helping those in need and building a connection with my new community.

Often, when I am working on my research, the outcomes – which I hope to be beneficial to society – seem very promising but quite distant in the future. However, doing community service gives me an outlet to make a difference – even if small or limited – *today*.

Since my first year at MIT, I have volunteered at several different organizations through the **Graduate Student Volunteer Corps** (web.mit.edu/gsvc/www/). This is a group of MIT graduate students who organize monthly group volunteer opportunities with various local charitable organizations. Volunteering has been a great way to meet fellow community-minded graduate students, and quite a few of my friends are people who I first met at a community service event.

While some volunteer projects require a weekly 3-4 hour commitment, many of them are one-time events that occupy only half a day on a weekend. These one-time opportunities are perfect for groups or people with busy schedules. They can serve as an introduction to many different charitable organizations, and the experiences helped me pick one where I decided to make a weekly commitment.

I first began volunteering with **Rosie's Place** (www.rosies.org), a support center for poor and homeless women, as a part of a group from the Graduate Student Volunteer Corps. Now I go back to Rosie's Place on a weekly basis because it is a unique opportunity to serve not only food, but to also share encouragement and humor with the guests there. I have enjoyed the intense moments of concentration and sudden outbursts at Sunday night bingo, the comical "what kind of meat is that?" questions about the soup, and the occasional impromptu dance and piano performances by the volunteers and guests.

Another organization that I enjoy working with is the **Charles River Conservancy** (CRC, www.charlesriverconservancy.org). CRC is a nonprofit dedicated to restoring the parklands around the Charles River. The current level of public funding for the Department of Conservation and Recreation is inadequate to maintain the parklands. Therefore, the CRC and its volunteers have stepped in to help maintain plant health, erosion control, and parkland accessibility for walkers, runners, and bicyclists. The type of work depends on the season and the needs. In the winter and early spring, tree pruning to prepare for springtime growth is a priority. In the fall, volunteers clear invasive plant species from the riverbanks.

There are many Boston area non-profit organizations with volunteer opportunities for individuals and groups. Among them, I encourage you to look into different groups through campus organizations such as the **MIT Public Service Center** (web.mit.edu/mitpsc) or the Graduate Student Volunteer Corps, or through local networks such as **Volunteer Solutions** (www.volunteersolutions.org), **People Making a Difference** (www.pmd.org), or **Bread and Jams** (www.breadandjams.org).

Volunteering is an incredibly rewarding way to leave a part of yourself – in the form of time and attention – with someone in need or with your community environment. People volunteer for a variety of reasons – to share a skill, to honor a deceased loved one, to take a break from work, to make friends…. In my case, it has given me a sense of place in my new home and an opportunity to make a positive impact in people's lives in very practical ways. Whatever your personal motivation may be, I hope that you enjoy your next community service experience – maybe I'll see you there!

dining sustainably

by: **Jenn Robbins**

Ever wonder what kind of meat you're getting when you order a chicken breast sandwich at your dorm's dining hall? Although college campus food is notorious for its low cost and mediocre quality, many MIT students are enjoying healthier and more 'earth friendly' food than one might expect from on-campus dining. Bon Appetit, a custom restaurant company providing à la carte dining services to MIT's dormitories as well as catering services to the MIT community, is dedicated to conducting its food business in a socially responsible manner. The company has taken major steps toward providing fresh food that is produced with the intention of promoting community health and sustainability. The company's efforts are focused on leveraging its purchasing power to support sustainable food supplies and local food producers. Under a program called "Food for a Sustainable Future," Bon Appetit ensures that the wholesale food provided to chefs on-campus meet certain standards for human and ecological health. In other words, that chicken sandwich with lettuce and tomato was not necessarily made with the cheapest available meat and with vegetables that were purchased from the least expensive supplier; the sandwich is the result of careful thought and consideration during the purchasing process.

Among Bon Appetit's programs for building a sustainable food service is "Farm to Fork", where Bon Appetit purchases produce, dairy, and meat from local farmers rather than from large purveyors. The practice of buying locally allows Bon Appetit to directly support farmers who don't use pesticides and who practice socially responsible farming. Bon Appetit is also committed to purchasing meat, poultry, and dairy products from farmers who avoid the routine administration of antibiotics to their animals. Many antibiotics and related drugs used to treat human infections are often added to farm feed as a preventative measure against disease and to promote the growth of food-producing animals. However, such use of these drugs can cause microbes to develop antibiotic resistance, which ultimately reduces the effectiveness of the drugs in treating human disease. Because the discovery of new antibiotic drugs has not kept pace with the widespread use of antibiotics in medicine and agriculture, clinical antibiotic resistance has increased to such a level that some microbes are resistant to all clinically used antibiotics, and 70 percent of infection-causing bacteria are resistant to at least one of the drugs most commonly used to treat infections. To help protect human health and preserve the efficacy of currently available antibiotics, Bon Appetit does not purchase chicken from farmers who routinely use antibiotics that are also used in clinics to treat human infections. Bon Appetit also preferentially purchases other animal products that are produced without the use of antibiotics.

In addition to its stance on antibiotic use, Bon Appetit has staunchly supported marine wildlife preservation by only serving seafood harvested in accordance with the Monterey Bay Aquarium's Seafood Watch guidelines (www.montereybayaquarium.org/cr/seafoodwatch.asp). These guidelines specify which fish species can be fished or farmed in a manner that can be sustained into the long-term without compromising ecosystem integrity or species' survival. Because market demand for seafood far exceeds the ocean's supply, and nearly 70 percent of the world's fisheries are fully exploited or overfished, aquaculture has emerged as a seemingly viable solution to meet the seafood shortage. However, many forms of aquaculture involve the same environmental problems associated with traditional farming practices: habitat destruction at the farm sites, chemical and antibiotic misuse, and in the case of fish farms, potential contamination of wild fish populations with farmed species and with the diseases fostered by fish-farming conditions. Consumer purchasing power, including that of Bon Appetit, can support sustainable fisheries and fish farms while relieving pressure on those species whose harvesting causes damage to the ecosystem and whose numbers have reached dangerously low levels due to overfishing. In addition to its socially responsible and environmentally conscious business decisions, Bon Appetit has also committed itself to education; the company recently helped sponsor the production of a documentary, "Farming the Seas," exploring the environmental, socio-economic, and health and safety impacts of the fish farming industries around the world.

So campus house dining is a whole lot more thoughtful than you might have expected, right? You may now be wondering if you're paying a little more for that chicken breast sandwich made with chicken produced without antibiotics and with lettuce and tomatoes purchased from local farmers. While many organic food products and healthy food choices confer extra costs to consumers, MIT students are only paying pennies more for fresher, healthier, and more sustainable food options. According to Bon Appetit, because of the company's large size and buying advantage, the extra cost transferred to students for its sustainable food service is insignificant. So next time you are eating at one of MIT's dorms or are enjoying catering from Bon Appetit, go ahead and dig in to the food that satisfies your health, your wallet, and your conscience.

The feeding of antibiotics to farm animals can cause microbes to develop antibiotic resistance, which ultimately reduces the effectiveness of the drugs in treating human disease

ecolabeling

by: **Claudia Cordiè** and **Ian Finlayson**

What we buy and where we buy it has a large impact on how 'sustainable' our lifestyle is. The good news is that it is becoming increasingly easy for us as consumers to make a difference by buying products that can have huge benefits for the local economy, for poor communities, and for the environment. Labels are an important way to learn more about the characteristics of the products we buy. While many eco-labels focus on the potential health benefits to the consumer, some labels focus on the social and ethical aspects of where you spend your $$. Here we focus on two types of eco-label products: **Fair Trade certified products**, and **sustainable clothing choices**.

Fair Trade Certified Products

Fair Trade is a trading partnership which seeks greater equity in international trade by guaranteeing producers (farmers and artisans) in developing countries a fair price for their products. Fair Trade encompasses food, clothing, and decorative arts, but is most notably associated with coffee. There are several fair trade labels in different countries. Each has a certification agency which verifies that the product respects internationally harmonized fair trade principles: social and economic development, basic labour rights and environmental protection. FLO (Fair Trade Labeling Organisations) International is the worldwide Fair Trade standard-setting and certification body (www.fairtrade.net). FLO monitors producers. It guarantees that products sold anywhere in the world with a Fair Trade label marketed by a national initiative conforms to Fair Trade standards and contributes to the development of disadvantaged producers. The certifying agent for Fair Trade in the United States is TransFair USA, a nonprofit organization that monitors and certifies manufacturers and importers of coffee, cocoa, tea, bananas and other fresh fruit (www.transfair.org).

The requirements for becoming Fair Trade certified are that producers are paid a living wage for their product, AND that products come from producer-owned cooperatives. This ensures that the producers earn a living wage. In addition, Fair Trade cooperatives often receive technical assistance from non-governmental organizations (NGOs) to improve product quality standards and encourage shade-grown (less clear cutting of forests) and organic farming methods.

Socially and Environmentally Sustainable Clothing

There are two main ways that clothing can be sustainable: if the raw materials are grown in a sustainable manner, and if the clothing is produced in a socially sustainable manner.

Raw materials such as cotton are produced in both the US and in developing countries. US conventional cotton is heavily subsidized, and highly dependent on the intensive use of herbicides, pesticides and petroleum-based fertilizers, making it one of the most environmentally damaging crops we produce.[1] We recommend that you consider organic cotton as a more environmentally sustainable alternative.

Recommended fair trade coffee and chocolate brands in and around MIT

- Green Mountain Coffee, found in the Building 4 Café, BioCafé, Faculty Club, and Alpine Bagels. Other locations on campus usually have one fair trade coffee option.
- Equal Exchange Coffee, available in many Boston/ Cambridge supermarkets (www.equalexchange.com)
- Fair Trade chocolate is harder to find but Equal Exchange and Green & Blacks Maya Gold are recommended and available in Central Square.

Recommended clothing brands

- Maggies Organics or Patagonia organic clothing
- American Apparel clothing or Protoculture clothing

Recommended buying guides

- Coop America (www.coopamerica.org/)
- Metaefficient.com (www.metaefficient.com)
- Global Exchange (www.globalexchange.org/store)
- Green pages (www.greenpages.org)

According to the US Department of Labor (www.dol.gov), a sweatshop is any factory that violates more than one of the fundamental US labor laws. In other words, a sweatshop is a workplace where workers are subject to extreme exploitation, including the absence of a living wage or long work hours; poor working conditions, such as health and safety hazards; or arbitrary discipline, such as verbal or physical abuse, or fear and intimidation when they speak out, organize, or attempt to form a union.[2] U.S. sweatshops still exist. A U.S. Department of Labor survey in 2000 found that 67% of Los Angeles garment factories don't pay workers minimum wage or overtime and 75% violate health and safety codes[3] (for more info: www.sweatshopwatch.org).

There are several ways to avoid buying clothing that is produced in sweatshops. First, we recommend that you buy clothing with a sweat-free or union label. Unions enable workers to avoid sweatshop conditions through collective bargaining agreements with factories. Second, you can buy products from co-ops, which are collectively owned and operated by the workers, and thus have control over working conditions (see box). Finally, you could increase your awareness of what you are buying by gathering information on clothing companies (www.responsibleshopper.org).

editorial: education

by: **Jeffrey Steinfeld**

The human species is in the midst of an unprecedented, global-scale experiment that will determine whether our species can achieve a sustainable relationship with the natural environment. This experiment involves:

Atmospheric composition. At certain times of the year, over large parts of the planet, the ozone is decreased to levels not seen since before life existed on the Earth's surface. We are driving atmospheric carbon dioxide levels higher than at any point in the past 450,000 years, levels probably not seen since dinosaurs roamed the Earth.

Global Climate. The Intergovernmental Panel on Climate Change has concluded that "most of the warming observed over the last 50 years is attributable to human activities."[1]

Composition and Distribution of Biological Species. Species extinctions are occurring at a rate not seen since an asteroid wiped out the dinosaurs 60 million years ago. Habitat loss and over-exploitation are major contributors to the current wave of extinctions. In addition, existing species are being introduced into ecosystems that are largely unprepared for them.

Introducing New Forms of Matter. During the previous century, chemists synthesized 10 million new chemicals that had never before existed. Over 70,000 of these are widely distributed in commerce, and most of them have never been screened for human toxicity or ecotoxicity. Within the past few years, an entirely new class of nanomaterials has been created, again with little or no concern for their possible effects on the environment.

Genetic Modification. Modern biotechnology has accelerated the pace of evolution (previous driven by natural selection) by several orders of magnitude.

Growing Social Inequity. Over 1 billion people – nearly one-fourth of the human population – do not have access to electricity or other reliable energy supplies.

We do not know what the outcome of this experiment is going to be. We do know that if the experiment fails, and the environment is so badly damaged that it can no longer support the social and economic systems on which we depend, we will not be able to return it to the manufacturer and demand a free replacement. We have only one chance to get it right. We must therefore *bias* the experiment in such a way as to give us the best chance to get it right. The best way that we know how to do this is to educate the current generation of students, who will be pursuing careers, raising families, and living their lives during the rest of the present century.

I now address myself directly to the next generation: *your* success, *your* well-being, and even *your* survival are going to depend critically on your understanding of how the Earth's system works; being aware of the impact that human activity is having on the Earth; and seeking practical solutions for the problems that you have identified.

How well are we doing in the effort to identify problems and implement solutions? I will briefly describe what is happening at MIT, and then extend the scope to include our Alliance for Global Sustainability (AGS) partners and the rest of the world.

At MIT, we have made a deliberate decision not to segregate environmental studies into a separate school or department, as many of our peer institutions have done. Programs such as the Laboratory for Energy and Environment (lfee.mit.edu) and the Earth System Initiative (web.mit.edu/esi) seek to infuse environmental knowledge and a sustainability ethic throughout our educational and research programs. In addition, a vigorous co-curriculum effort seeks to translate this knowledge into practice. There is a penalty associated with our approach, however, and that is a lack of visibility and recognition for the richness and diversity of MIT's programs in environment and sustainability. Many of our competing institutions have made strong public statements about the pre-eminence of environmental concerns in their educational and research priorities – something MIT has not yet done, and would be well advised to do.

MIT, ETH-Zurich, the University of Tokyo, and Chalmers University in Sweden have partnered to form the AGS (globalsustainability.org). The AGS seeks "to address the complex issues that lie at the intersection of environmental, economic, and social goals."[2] The current focus within the AGS is an integrated program on "Near-term Pathways to a Sustainable Energy Future." A central component of the project plan is the development and delivery of educational materials, including course and curriculum development,

We will not be able to return our Earth to the manufacturer and demand a free replacement

case studies, and web-based and printed teaching materials. The AGS has also pioneered the Youth Encounter on Sustainability summer conferences (see the YES article in this publication). On the global level, UNESCO has declared the coming decade (2005 – 2015) to be "a Decade of Education for Sustainable Development" (UNDESD).[3]

While the declaration provides a certain political legitimacy to the activities discussed here, the real test is what we will do, as individuals and as institutions, to accomplish these lofty goals. What can we hope for the future? A quote from the Babylonian Talmud best sums up the message that I, on behalf of my generation, would like to pass on to the next generation: "You will not be able to finish the job, but you are not free to abandon it."[4] You are the ones who can make the change. The future is in your hands.

green architecture

by: **Siân Kleindienst**

What makes a building green?

A green building is designed to have a minimal environmental impact throughout its lifetime, from its construction, through its use, and finally to its demolition. Designers of sustainable buildings must consider materials use, land use, water use, waste management, air quality, location (transportation efficiency), building life, and flexibility. A sustainable building might, for instance, use local materials (decreasing transportation exhaust), include recycling and/or composting waste units, be located near a train or bus station, and be adaptable to many kinds of use. In this last case, the more robust and flexible a building is, the more likely it is to be renovated rather than torn down and taken to a landfill.

Water management is another big sustainability issue. Wastewater is divided into "grey water" (from showers, baths, laundry, dishwashers, and sinks) and "black water" (raw sewage, mostly from toilets). Properly collected, grey water can be reused for purposes like landscaping, which could save hundreds of gallons of fresh water daily.

There are sometimes tradeoffs to be made between different green building technologies. For example, setting cement releases a large amount of CO_2, but perhaps a wooden façade would give less thermal insulation, or stone would have to be transported many miles. It is difficult to design a building that is sustainable in every area, so the architect must decide which are the most crucial and feasible issues.

Many resources go into a building, including water, construction materials, and land, but *energy use* is probably the most visible resource problem in today's buildings. There are two environmental issues within the subject of energy use that are closely related and often confused: energy sources (the environmental impact of energy generation) and efficient energy use (the energy demands of a building). Both are vital to a sustainable building. For example, one could employ the cleanest energy sources possible, but if the house is energy inefficient, resources will be wasted or unable to keep pace with demand. On the other hand, one could not call an efficient house truly sustainable. It might use less electricity, but if that electricity is produced from fossil fuels, then the energy itself is inherently unsustainable.

Energy efficiency and energy source may both be crucial, but in the construction of a green building, the former is a more important consideration. It is harder to make a building sustainable after it is built, whereas the source of energy is more easily switched.

Looking Back and Around the World

As recently as 200 years ago, people lived sustainably because they had no other choice. Before electric and gas lights, buildings were designed to use daylight. Before large heating and air conditioning systems, buildings used passive thermal techniques particular to their climates. Before cars and trucks, most buildings were constructed from local materials. Because of this, one can get many green ideas by studying old buildings in a particular area, or by studying construction in developing countries. For instance, Spanish-style houses in sunnier climates have used red barrel-tile roofs for centuries because Spanish tile reflects about 34% of the sun's energy.[1] Grand English estates used large windows while limiting the depth of the rooms to make sure they could be fully lit by daylight and warmed by the greenhouse effect. A historical and vernacular study of the architecture in any particular part of the globe is a study of sustainability suited to that environment.

Looking Forward

In developed countries today there are far more energy and comfort demands than there were a few hundred years ago. Thus, we have begun to invent renewable ways of producing or capturing energy. Wind power and photovoltaics (PV; materials that can convert the sun's light into electricity), are the most vernacular of these. Though small, the PV industry is growing by at least 25% per year, and annual investments in the wind industry are expected to pass the $2 billion mark in 2005.[2] Other efforts are also being made in the fields of biomass (fuel from plant materials), geothermal (using natural steam to power electric turbines), and hydrogen cell energies (an experimental fuel whose byproduct is water clean enough to drink). Governmental laboratories like the National Renewable Energy Laboratory (NREL) and private companies such as the not-for-profit Rocky Mountain Institute are researching all of these topics, but funding for them is still somewhat scarce and often dependent upon the political scene. Sadly, the first budget approved in President Bush's first term included a 35% cut in funding for NREL.[3]

Combining Ideas

Although renewable sources are improving, they generally can't handle the loads from energy inefficient buildings. Therefore, as mentioned above, one goal of green architecture is to make a building as inherently energy efficient as possible and then to supplement this with renewable energy sources. Unfortunately, energy and other green issues need consideration *early* in the design process, long before most architects are thinking about sustainability – often an architect will ask an engineer to make a design sustainable after crucial decisions have already been made. This practice, though impractical, is unlikely to change until architects and their customers start to see sustainability as a necessary and natural aspect of design.

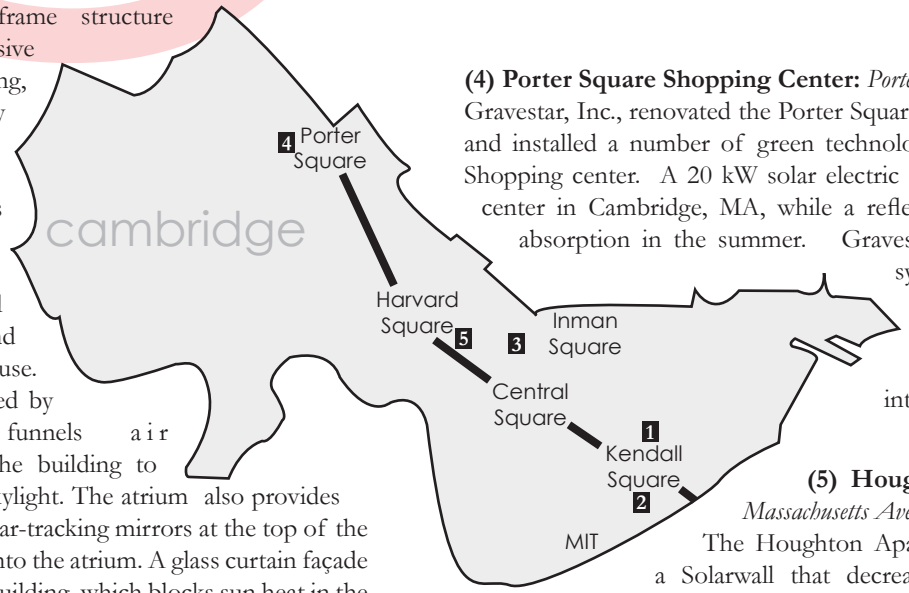
We still have a long way to go, but word is beginning to spread. There are numerous websites (such as www.greenstreet.org.uk) about improving existing homes, and some energy companies have also begun to sponsor energy audits of homes, subsidize the replacement of incandescent light bulbs, and install energy efficient appliances (see www.masssave.com for programs in Massachusetts). In the end, it is up to all of us to create the world – and the buildings – where this and future generations will live.

green architecture, local

by: **Samantha Sutton**

We have compiled a list of notable green buildings in the Boston area that use one or more different sustainable technologies. These technologies can greatly impact national energy consumption, as commercial building operation accounts for 36% of annual US energy use, according to the US Department of Energy.[1] A study conducted by Lawrence Berkeley Labs found that companies spend more than $100 billion on electricity, heat, and air conditioning, of which at least 20% could be trimmed by increased energy efficiency.[2] Green technologies offer ways for companies to decrease operations costs while shifting to sustainable practices.

(1) Genzyme Building: *500 Kendall Street, Cambridge*
The new Genzyme building incorporates many green technologies to decrease energy consumption and waste production. The building is supported by an exposed concrete frame structure that provides passive heating and cooling, decreasing energy consumption by as much as 38%. Employees are able to open office windows to control the local environment and minimize energy use. Ventilation is provided by an indoor atrium that funnels air from the base of the building to exhaust fans in the skylight. The atrium also provides natural lighting, as solar-tracking mirrors at the top of the building reflect light into the atrium. A glass curtain façade admits light into the building, which blocks sun heat in the summer and retains heat in the winter. A computer system adjusts artificial light levels to supplement natural light levels. The Genzyme building conserves water by utilizing waterless urinals, dual-flush toilets, and low-flow fixtures. Storm water is used to irrigate the rooftop gardens, and to cool the building via evaporation.[3,4]



(2) Stata Center: *32 Vassar Street, Cambridge*
MIT's Stata Center uses a storm water containment and treatment system to decrease runoff rates into the Cambridge sewage system, clean runoff water, and provide flushing water for building occupants. The storm water containment site is located between buildings 56 and 57, and consists of a lattice work system capable of holding 50,000 gallons. Plants, trees, and soil surrounding the containment system filter out 80% of the total suspended solids in the storm water.[5]

(3) Cambridge City Hall Annex: *344 Broadway, Cambridge*
The Cambridge City Hall annex, first built in 1871 and renovated in 1899 and 2003, makes use of several green technologies. Water-efficient landscaping decreases water usage by 50%, while a rooftop 28-kilowatt solar photovoltaic (PV) system provides 10% of the building's electricity. To heat the building, the annex uses a ground source heat pump system. The ventilation system further increases energy efficiency by using exhaust air to heat incoming air. In total, officials estimate that the annex will consume 50% less energy than convention buildings. As opposed to the Genzyme and Manulife buildings, the Cambridge City Hall annex does not have a rooftop garden, but rather employs a highly reflective rooftop material to decrease heat absorption in the summer, and increase heat retention in the winter. As in the Genzyme building, the annex makes use of sunlight for interior lighting, and a computer monitoring system adjusts artificial light levels to accommodate fluctuations in natural lighting. 80% of construction waste was recycled, and 50% of the wood used in the annex came from certified sustainable forests.[6]

(4) Porter Square Shopping Center: *Porter Square, Cambridge*
Gravestar, Inc., renovated the Porter Square shopping center in 1999, and installed a number of green technologies in the Porter Square Shopping center. A 20 kW solar electric system fuels the shopping center in Cambridge, MA, while a reflective roof decreases heat absorption in the summer. Gravestar also installed a drainage system that captures and cleans storm water before using it to irrigate the landscaping or releasing it into ground water.[7]

(5) Houghton Apartments: *1008 Massachusetts Avenue, Cambridge, MA*
The Houghton Apartment complex contains a Solarwall that decreases winter heating costs through a dark perforated surface that surrounds the rooftop mechanical room. Sunlight heats the surface, which then preheats air that is pumped into the building for ventilation. It is estimated that the Solarwall saves roughly 120 Mbtus of energy each year, which amounts to $1,500 and 14,752 lbs. of CO_2.[8]

(6) Fresh Hair Salon: *62 South Street, Jamaica Plain, MA*
Fresh Hair salon has installed a solar hot water system to heat the large volume of water consumed by the salon. In 20 years, the salon will produce 72 tons less carbon dioxide. Its annual expenses will also drop by about 65%. Through tax incentives alone, Fresh Hair will recover over 40% of its initial investment over the first five years – complete payback will occur over eight years.[8]

lfee: education

by: **Elke Hodson**

An interview was conducted with Amanda Graham and Beth Conlin from the Laboratory for Energy and the Environment (LFEE) Education Program *regarding the impact of their efforts to increase the options available to students interested in sustainability. The following is a summary and* not *a transcript of the interview. These are* not *quotes.*

LFEE was created to foster research collaborations across departments and to act as a focal point for energy and environmental activities throughout MIT. The program houses more than a dozen centers, groups, and programs and incorporates faculty and staff from 13 departments. One of the programs in which LFEE takes part is the Alliance for Global Sustainability, or AGS. AGS is a large international partnership between LFEE, Chalmers Institute of Technology in Sweden, the University of Tokyo, and the Swiss Federal Institutes of Technology. AGS sponsors cross-university research exchanges as well as an annual meeting. This year's annual meeting was held at MIT in March (web.mit.edu/agsam2005/). All of the programs referenced here with regard to AGS can be found at www.globalsustainability.org. The LFEE Education Program is closely tied to the LFEE Research Program although each has its own focus. One of the important parallels in Studio!Sus is that the Education program coordinates MIT's efforts at the two week summer course, Youth Encounters on Sustainability, or YES (see article in this publication).

1. Could you give a brief overview of what the Laboratory for Energy and the Environment's Education Program does?

Our **focus** is **environmental and sustainable education and awareness**. Specifically we have four main audiences: (1) kids in the local community, (2) MIT staff and students, (3) national programs, and (4) international programs like the Alliance for Global Sustainability (see above).

2. The LFEE education program offers many resources to MIT students. Could you name three of the most important resources?

Enviroclasses (enviroclasses.mit.edu) is a searchable database listing over 180 environmentally-related classes on campus. The database is three years old and is currently undergoing a content assessment. More students are using the database each year. At the moment, the LFEE staff decides with faculty input which classes are included in the database, but student input is always encouraged.

We offer a **freshman advising seminar**—MIT freshman can have traditional one-on-one advising or an advising seminar which meets once a week—where we talk about a topic of interest to students in addition to advising them. In the past two years, five students in the seminar completed the first student waste audit at MIT. One student even started a composting program in her dorm. Professor Jeffrey Steinfeld in Chemistry offers a parallel freshman advising seminar. Tech Bikes (web.mit.edu/dzshen/www/), which is on its way to instituting a bike sharing program on campus, came out of this seminar during 2003-2004.

For the past three years we have offered a four-credit **IAP Climate Change seminar** along with political science professor, Stephen Meyer. Students develop voluntary initiatives to help reduce the greenhouse gas emissions of a sector in Cambridge. For example, during IAP 2005, the seminar focused on building energy issues. The students have two weeks to work in small groups and submit a written proposal and presentation. Past proposals have included: a green power marketing campaign, a city resident purchase initiative for low emission hybrid vehicles, and a walking school bus.

3. What new programs are you currently working on?

All of our current projects revolve around making environmental and sustainability information more available to a number of different audiences. We are **collaborating with the career office** by: (1) revising brochures in the office to offer more print materials on environmental science, engineering, and policy careers, (2) trying to develop ways to formalize internship opportunities in environmental fields, and (3) conducting benchworking research on standards in the field of environmental career advising. Our second project is called **Delivering Research Results** (DRR). It involves developing a website for undergrads, graduate students, and educators on sustainable energy issues. The aim of the website is to make LFEE/AGS (see introduction) research digestible to a non-scientific audience. AGS universities are trying to reach beyond their own communities.
A second motivation for the website is the difficulty educators have in getting research published in proprietary journals. This website would hopefully become a clearinghouse for some of the sustainable education research. Lastly, we have dreams of starting an environmental UROP clearing house, but that is still a ways off.

4. Are there any fellowships that either LFEE or AGS offers to MIT students?

There are a number of environmental fellowships offered at MIT. LFEE coordinates the **Martin Family Society of Fellows for Sustainability** (lfee.mit.edu/programs/martin/) which supports about two dozen graduate students for one semester a year. The fellowship is meant to encourage graduate level research, education, and collaboration regarding sustainability among students in different departments. In practice, this takes the form of luncheons, research exchanges, and annual retreats as well as a fellows publication. The current Martin Fellows are also encouraged to attend the annual AGS meeting.

Other environmental fellowships on campus include the new Future Energy Fellowships which will support sustainable energy related research, Linden Fellowships through the Earth System Initiative, the Department for Urban Studies and Planning Environmental Fellows, and the Carroll L. Wilson Travel Award Industrial Performance Center Fellowship which covers international development travel.

organic + local food

by: **Kirsten Kinzer**

You probably often hear the buzzwords *organic* and *locally grown* a lot over the past few years, and you may have noticed your local supermarket adding more organic foods to the aisles. Organic food's growing popularity stems in part from concerns over the health impacts of residual pesticides and the ecological impact of pesticides that enter the environment. Locally grown food, on the other hand, is appealing because it allows consumers to more closely monitor food production methods. It also decreases the negative environmental effects associated with transporting non-local foods, which travel an average of 1500 miles from producer to consumer.[1] As a student, you don't have much buying power. You probably don't have much time to think about your grocery shopping. You live in a bioregion where, except during a few summer months, the only crops that truly flourish are cranberries and apples. Luckily, you live in an area in which it is possible to find both organic and locally-grown foods with a little bit of time and planning.

It is possible to purchase **organic food** at any of the four major supermarkets within walking distance of MIT, namely **Star Market**, **Whole Foods** (on River St. or Prospect St.), or **Harvest Coop**. One major difference between stores is the availability of local produce. Star Market is part of a chain, selling fruits and vegetables from farmers that produce at a large scale. Due to the difficulty of farming on such a scale in New England, this purchasing policy limits local produce sold by Star Market to summer berries and salad greens. Harvest Coop falls on the other end of the spectrum, with only two stores and a policy to purchase from local farmers whenever possible. Whole Foods also has a policy to purchase **local produce** whenever possible, and unlike Harvest, explicitly labels where all produce in the store was grown.

The second layer of choice in produce is **when and how to buy organic**. From the personal health perspective, some vegetables and fruits retain a higher degree of pesticides than others. One strategy to consider is buying the organic version of produce that tends to be high in pesticides, such as apples, grapes, peaches, pears, bell peppers, potatoes, and spinach. On the other hand, bananas, grapefruit, kiwi, broccoli, eggplant, onions, and asparagus tend to retain low amounts of pesticides and therefore buying non-organic versions of these products is not as damaging to your health (www.foodnews.org/index.php).

Where to purchase may be as important a decision as what to purchase in expanding your range of choices. While all four stores mentioned above were willing to state their policy on purchasing organic and local produce, none were able to state the typical variety in organic and local produce available. In a survey of these stores in

the late fall, a comparison of the produce available revealed that Star Market offered 17 items of organic produce in early November, with three items grown in New England and the remainder grown in either California or Mexico. Both Whole Foods and Harvest Coop fared better, with 60 and 67 organic produce items, respectively. Whole Foods featured 19 items grown in New England, as well as several local conventionally farmed items, but because it is difficult to determine where produce at Harvest originates, it was not possible to compare the relative amount of local produce between the two stores.

While the alternatives outlined above represent a spectrum of simple choices for a busy student, other options that go a step further do exist. In the summer and fall, the farmers markets that pepper Cambridge and beyond offer a chance to buy directly from farmers (www.nofamass.org/programs/ofg/markets.php). **Community Supported Agriculture** (CSA) programs connect specific farms with local residents by providing boxes of organic produce from specific farms on an ongoing bias. While many CSA programs are not ideal for students due to the cost structure and the peak season/summer break overlap, some, such as The Food Project, have options for a winter produce as well (www.thefoodproject.org/buy/internal1.asp?ID=137).

The range of options available to an MIT student includes both conventional and organic purchases at stores with sustainable policies, and involvement with local farms on a personal level through the CSA program. We are lucky at MIT to have these options, even when faced with a regional agricultural disadvantage. With a bit of strategy, organic and local food can fit into even the busiest student's life.

Where can I find a farmers' market?

- Cambridgeport, Magazine St & Memorial Dr
- Central Square, behind Harvest Coop
- Copley Square, St. James Ave
- Davis Square, Day & Herbert St
- Harvard Square, Charles Hotel
- Haymarket (year-round)

public service center

by: **Philip Sheehy**

I had a chance to sit down with Sally Susnowitz, the director of MIT's Public Service Center (PSC) in the fall of 2004 and ask her some questions about the resources available to students interested in community service at MIT. The following is a summary of Sally Susnowitz's comments, and is not *a transcript of the interview. These are* not *quotes.*

PS: How would you describe the PSC to someone who doesn't know what it is or what services it offers?
SS: The PSC is an open resource and source of support for students interested in community service. Our mission is consistent with MIT's; we offer support for a complete education. We have a simple premise here at the PSC: motivate, facilitate, and celebrate.

PS: Can you describe 3 of your favorite programs?
SS: Well, that's not really fair. We have a bunch of great programs. We offer a variety of resources here at the PSC. We provide informal advising for interested students – we are a sounding board and idea source, really. We also have a variety of institutionalized programs that not many people know about. There are a variety of grants and fellowships available too – all this stuff is on our website (web.mit.edu/mitpsc). More recently, we've been sponsoring the IDEAS Competition. Really, we are try to provide a wide array of opportunities for students to get interested in public service. Here are my 3 programs:

1) SciPro is a science-mentoring program for economically disadvantaged minorities. We put interested MIT students in touch with Boston and Cambridge schools seeking mentors. Essentially, the program boils down to helping a kid do a successful science project – which, as you can imagine, can make a big difference.

2) CommuniTech: There are two parts to this program. The first part is Used Computer Factory (UCF), in which volunteers refurbish computers. The computers are donated to under-served families in the community. Students are providing a valuable community service while improving their own understanding of computer hardware. CommuniTech also features a program that links interested families with a volunteer that helps train the family, and gets them accustomed to using the basic functions of their machine. We call this Families Accessing Computer Technology (FACT).

3) Another program that comes to mind is the Keys to Empowering Youth (KEYs) mentoring program. It is specifically designed to match female student volunteers with girls aged 11-13 years old, with the intention of generating interest and excitement about science and/or engineering in the next generation of women.

PS: Other than being 'the right thing to do', why should students get involved?
SS: Well, it's not really our job to check students' motivation; we all know that volunteering looks good on someone's résumé. We operate under the assumption that public service is good for the students, regardless of motivation. It's important to understand that the complexity of a community-based problem is attractive to MIT students. It's an opportunity to deal with a 'real-world' problem with unexpected outcomes. Working as a volunteer isn't like a p-set; we're training leaders in an exciting arena that is always changing.

PS: Where do you think public service ranks in a student's education?
SS: I like to think of it more as part of the process, rather than something that is forced upon students. We're clearly not a subject matter, but we are kind of like a UROP. We are a means to a *better* education. I think we're part of the fabric of how people learn. Think about it . . . there is always a balance in education. You can take an extremely difficult class in Course 8, or you could try teaching a kid to read. They're different.

PS: How do you measure success at the PSC?
SS: We have a variety of methods for assessment; mainly post-project evaluations administered to students, community participants, and the agencies involved. There are data that you can collect, like how many people participated, but actually capturing how much people gain is more difficult. So we try to get students to tell their stories – that's how we convey success.

PS: In terms of post-graduation, what can the PSC offer students? Job prospects? Or is it just the development of a skill set?
SS: We are primarily facilitating the development of a skill set. We don't have the resources to formally provide job placement. We do what we can, but at this point we don't have the means to provide for students *after* they graduate. This past IAP, however, we did sponsor a workshop that presented alternatives to the Peace Corps.

PS: I hear people talk a lot about Service Learning these days . . . tell me more?
SS: In short, service learning incorporates course-specific community service projects into the curriculum. For instance, Course 2 was recently awarded a NSF grant for service learning. We're assisting the development, refinement and spread of service learning. David Wallace in that department has been instrumental in this process. There are now Service UROPs, grants, and other resources.

PS: Finally, what would you say to the students who may not understand how community service and volunteering will help their engineering careers?
SS: There are a number of valuable programs through the PSC that can improve and test a student's engineering skills. The Public Service Design Seminars offered through the Edgerton Center are really phenomenal. Students get experience in technical skills (e.g. welding, Java programming) while fulfilling a need (e.g. health technology, teaching basic computer skills in an under-served area, etc.). As I said before, we have UROPs, research projects, fellowships, the IDEAS competition . . . there are many ways to put engineering skills to the test in a practical situation. I think that a lot of these problems are begging for the attention of qualified MIT students.

student groups

by: **Jessica Lee**

Students for Global Sustainability (S/GS):
S/GS is comprised of students who are interested in sustainability both within MIT and the world at large. One of six chapters of the World Student Community for Sustainable Development (WSC-SD), MIT's S/GS works with groups in Switzerland, Japan, Sweden, and Russia to promote economic development which will maintain ecological balance and social justice. MIT's group organizes and takes part in activities to exchange ideas and knowledge, such as the 2005 WSC-SD Annual Meeting and the annual Earth Day celebrations, both held at MIT. While thinking globally, S/GS, above all, acts locally, through campus-focused projects such as the publication of this resource guide, advocacy for residential energy conservation, and joint lecture series on campus each semester. One of the most diverse environmental groups at MIT, S/GS welcomes members of all backgrounds and research interests at their biweekly meetings.
web.mit.edu/sfgs/

Share A Vital Earth (SAVE)
What does playfulness have to do with environmentalism? A lot, or so SAVE believes. Events such as free plant handouts, scratch paper notebooks, and the yearly outdoor Earth Day festival can greatly impact the attitudes of the MIT community toward the importance—and the simplicity—of protecting the Earth. Although SAVE once organized its projects during regular meetings, now they tend to materialize when volunteers respond to a call to action by email.
mailman.mit.edu/mailman/listinfo/save

Western Hemisphere Project: awareness of a region
The mission of the Western Hemisphere Project is to further discussion and communication in the MIT community about "the relationships among peoples, governments, and corporations in the Americas." The group of students, alumni, faculty, and staff works to achieve this goal through discussions, which are organized to focus on a country or a boundary-crossing issue. Many of the issues affect people from all over the world. Monthly meetings for organization and discussion are open to the entire MIT community.
web.mit.edu/hemisphere/

Students for Labor Justice: got fair trade?
MIT Students for Labor Justice runs campaigns to raise student awareness of justice issues. Most recently they have focused on promoting Fair Trade Coffee, which offers family farmers a fair price for their products and supports sustainable farming methods through articles, awareness events, and eye-catching posters. A campaign for sweatshop-free clothing is also in progress.
web.mit.edu/labor/www/index.html

Student Pugwash: talking about social responsibility
Since the mid-1980s, Pugwash has been instrumental in encouraging MIT students to examine the social, political, ethical, and environmental implications of science and technology. The MIT chapter of Student Pugwash USA sponsors a multitude of discussion forums including lectures, debates, film screenings, and conferences, and student-written online guides. Currently, the group aims to re-establish the Graduation Pledge at MIT, in which students pledge "to explore and take into account the social and environmental consequences of any job" they consider.
web.mit.edu/pugwash/index.html

Design that Matters (DtM): putting creativity to work
Since its founding in 2000, DtM has engaged over 300 students and given rise to a business startup, four patent applications, and dozens of promising prototypes. In addition to its spring studio class and fall intro design seminar, DtM@MIT sponsors an Inventor's Tutorial, a design competition, and collaborates with the Boston Museum of Science. One need not be an engineer to join; volunteers with creative, organizational, or public relations skills can help.
web.mit.edu/dtm/www/

Sustainable Urban Development Society (SUDS): sustainable design planning in the built environment
The Sustainable Urban Development Society, founded in 2003 as a working group in S/GS, promotes communication among students, faculty, and staff, notably from the Department of Urban Studies and Planning (DUSP) and the Center for Real Estate (MIT/CRE). Its focus has been on two initiatives: a student research seminar lunch series where members share and discuss their findings; and an evening Sustainable Speaker Series.
web.mit.edu/dusp/EPG/research/urbdev/

GreenMap MIT: do you know where your recycling bins are?
The initiative, in affiliation with the international NGO Green Map System Inc., aims to generate maps of sites important for an environmentally-sensitive lifestyle, from community gardens to organic groceries, both at MIT and throughout Cambridge. Early editions of the maps were published and distributed in Fall 2004; work continues toward the ultimate goal of a large-format paper map and a web-based electronic mapping service. GreenMap MIT welcomes volunteers to help in any aspect of map-making, education, and distribution.
greenmap.mit.edu/

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transportation

by: **Karim Abdul-Matin**
Shruti Chandrasekhar
and **Masahiro Sugiyama**

Do you drive? Do you bike? If you answered no to these questions, and you like to get around town, then this article is for you. Heck, even if you answered yes to either question you will probably find this article useful, especially if you like to party, you are responsible enough not to drink and drive/ride, and you cringe at Boston-area taxi rates. I'm here to give you a glimpse into local public transportation. Besides letting you know your options, I have some tips that will help take the guesswork out of using public transportation. I'll start with the free stuff.

If you need to get from one end of campus to another, say from right near building E51 to Tang or Westgate, and for whatever reason, walking is not a palatable option, then try the Tech Shuttle, MIT's free campus shuttle service. The Tech Shuttle operates weekdays from 7:15 a.m. to 7:15 p.m. (sorry, no weekend or MIT holiday service), and runs every twenty minutes in the spring, summer, and fall, and every ten minutes in the winter. They're wonderful when you have to get all across campus with your books or groceries in the middle of the cold stormy winter.

Not only do shuttles cover on-campus locations but they also provide a free and safe service to students who live off-campus in MIT affiliated housing. **SafeRide**, a popular shuttle van service operated by MIT's Parking and Transportation Office, has four routes, with shuttles running every half-hour or so, serving destinations in Cambridge and Boston between 6:00 p.m. to 3:00 a.m. Sunday through Wednesday, with an extra hour of late-night service added Thursday through Saturday. SafeRide services most, if not all, MIT-affiliated residences, including dorms, fraternities, and MIT-owned apartment buildings. The shuttle schedules are available online at web.mit.edu/parking/ and some of them are even tracked real time.

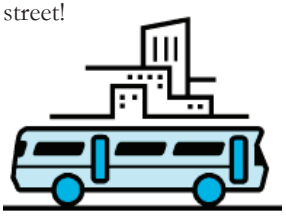
To be honest, I've not made much use of either shuttle service because I'm a pretty dedicated pedestrian. Besides being the ultimate environmentally friendly way to travel, walking helps to clear my mind, and when the weather cooperates, the fifteen or twenty-minute walk from MIT to Boston, Cambridgeport, or Central Square is really quite pleasant. But even the most dedicated pedestrian, who is undaunted by rain, wind, snow, and bone-chilling cold, is sometimes faced with distances and time-constraints that make walking impractical. What is the best way to get to Harvard, Tufts, Cleveland Circle, or Coolidge Corner? For these trips and more, the best way to travel is by MBTA (aka "The T", www.mbta.com)

Unlike the various MIT shuttles, The T is not free. You either pay-per-ride or you can buy a weekly or monthly pass. With a few exceptions fares are $1.25 for the subway, and $.90 for buses, with a free bus-to-bus transfer (ask the driver for a transfer when you pay). I use The T nearly six times every day and for me, my monthly pass is essential. Although there are passes specifically for buses or subways, I'm a huge fan of the monthly combo-pass, which affords maximum flexibility by letting you get onto buses and the subway. The combo-pass only costs $35.50/month (i.e. 50% off) when purchased through MIT's Parking and Transportation Office (web.mit.edu/parking/)

Even a public transportation lover like me occasionally feels the need to use a car (yes, I'll admit it). Luckily, Boston is one of the three dozen American cities that has a car-sharing service. If you ride the T, I'm sure you've seen their posters advertising the use of a Mini or Toyota Prius. Zipcar is an emerging car-sharing service, which has cars parked around campus and the Greater Boston area for use by the hour or by the day. To make a reservation, simply go online and click when and where you want to pick up a car. It's cheaper (a typical hourly rate is $8.50) and more environment-friendly than owning your own car, since you don't have to pay for maintenance, insurance or gas, and typically use a better maintained car than most students can afford. The major drawback is that sometimes the car parked nearest to you is busy when you want it or you can't find a car for an entire weekend. But largely the benefits outweigh the inconveniences, especially in a city with such annoying street parking rules as Cambridge and Somerville. Just like the T, MIT's Parking and Transportation Office subsidizes Zipcar membership so that MIT students and staff pay no application fee or security deposit and they pay a reduced annual fee.

Option	Cost	Area served	Hours
Tech Shuttle	Free	MIT	Weekdays: 7am – 7pm
SafeRide	Free	MIT & MIT off-campus housing	Daily: 6pm-3am (or 4am Th-Sat)
The T	Subway: $1.25 Bus: $0.90	Greater Boston	5:30am – 12:30am
Zipcar	$8.50/hour and up	Greater Boston	24 hours/day

So, get out there and discover what Cambridge/Boston has to offer. But remember, using public transportation keeps cars off the street!



worm composting

by: **Randi Mail**

It has been about a week or two since I have fed my worms. Tucked away in my apartment, you'll find two 10-gallon plastic containers, each of which is home to thousands of worms that eat my garbage. They'll eat just about any raw vegetable scraps or fruit peelings that I send their way.

Motivated by a desire to reduce my environmental impact, I began composting with worms over a year ago. My positive experiences have led me to encourage and teach others how to compost based on real life experience and simple curiosity. There are several forms of composting, but when one composts with worms, it is called *vermicomposting*.

After cooking or grabbing a snack, I collect the vegetable and/or fruit scraps (that have NOT been cooked) and I put them aside in the refrigerator. About every week, when a couple of small containers are full, I put the scraps in the compost bin. It's that simple. To date, I have probably diverted about 80-100 pounds of household food waste from the city's trash stream. Assuming that this waste would have otherwise been buried in a landfill, I helped prevent the emission of roughly 80 pounds of greenhouse gases. While this doesn't seem like much at first, one can appreciate the impact that vermicomposting *could* have if more people tried it.

So, what do I do with my worm castings, or vermicompost, you may ask? Well, I ultimately mix the vermicompost with potting soil and treat my houseplants to beautiful, rich compost as top dressing. When needed, I drain the excess liquid from the compost bin with a turkey baster and use this nutritious "compost tea" for watering plants.

I know that many people may not like worms, and they may also be concerned that keeping garbage in a bin may stink up their house. First of all, worms aren't going to be jumping out of your bin, and if you keep feeding them, they'll probably stay right where they are – out of sight. As a matter of fact, I have heard that one local resident has turned their composting bin into a table! With regard to 'the smell', in my experience, you only need to commit a small amount of time maintaining the compost bin to avoid any foul odors.

To compost with worms, I believe you basically need three things: a bit of curiosity, a couple of minutes per week, and a good spot in your apartment or dormitory. Use the guide provided here to start up your compost bin today.

Starting a worm-composting bin

Before preparing your compost bin, select a spot to store your bin. The worms should be kept in a spot with a temperature between 40-80°F. A balcony or a basement is a common place to keep a bin.

You will need the following things to get started:

- **10-gallon plastic bin**: needs to be opaque (worms don't like light). Make sure there are small holes in the top, bottom and sides of the bin.
- **Newspaper**: black/white pages *only*, shredded into 1-inch strips
- **1 pound of red wiggler worms** (you can get these on the Internet!)

1. After shredding the newspaper, soak it in water. Wring the newspaper dry until it is just damp enough to hold its shape when balled up. This will be the bedding for your worms.
2. Fluff the bedding into the 10-gallon bin until it is ¾ of the way full.
3. Add some food scraps to your bin. Push aside the bedding to make a hole for the food. After you put in the scraps, cover the food with shredded newspaper. This is important to make sure there is no smell and to avoid a gathering of fruit flies!
4. Add your 1 lb of worms to the bin – they'll start burrowing right away.
5. Rotate where you put the food as to make sure that the worms evenly distribute across the base of the bin. You should feed your worms about twice their combined weight per week. So, to start with, you should be feeding them about 2 lbs of food per week.
6. Keep feeding your worms regularly, and in about 2 months, you'll have nutrient-rich vermicompost!

NOTE: Make sure to keep your bin free from animal and dairy products.

For more detailed information and for tips on harvesting your vermicompost, visit the Cambridge Recycling Program at www.cambridgema.gov/theworks or email rmail@cambridgema.gov with questions.

youth and sustainability

by: **Manshi Low**

In August 2004, I attended the Youth Encounter in Sustainability (YES) summit in Braunwald, Switzerland, a quaint little town in the Swiss mountains. Held twice a year, YES is a summer institute organized by the Alliance for Global Sustainability (AGS, see LFEE: Education article in this publication) to nurture youths in leading the discussion and implementing actions towards sustainable development(www.ags.ethz.ch/en/cooperation/yes.cfm). YES sponsors include AGS and institutions such as the Velux Foundation (Zurich). The summit is targeted towards youths (people in their twenties) with diverse backgrounds (from economics to engineering to political science) and different nationalities.

The format of the two-week summit is an interesting mix of lectures by professors, professionals and environmental organizations, interspersed with group discussions, projects and games. The subjects covered are natural and human systems, energy and materials, nutrition, living space, and psychosocial needs. Participants are actively engaged and challenged to think about sustainable development from different perspectives—from climate change to systems thinking to alternative modes of transportation. At the end, participants present issues concerning sustainable development in their geographical regions, and possible solutions to these issues.

YES participants are actively engaged and challenged to think about sustainable development from different perspectives

One of the most interesting topics of my YES experience was corporate sustainability assessment. Corporate sustainability assessment is about evaluating the sustainability of corporate practices– corporations that score highly are listed in the Dow Jones Sustainability Indexes, among others. We discussed this topic with an environmental representative from Philip Morris, an American cigarette manufacturer. I was fascinated with the objectivity needed to evaluate corporate practices, as opposed to judging the ethics of a product itself.

Among the many groups represented at YES, one of the most interesting to me was *MyClimate*, an environmental group that aims to neutralize greenhouse gases emitted by air travel (www.myclimate.org). *MyClimate* is a successful Swiss startup created by YES alumni, which I found inspiring.

photo courtesy of *Final Report on YES 2002*

The YES learning experience was not confined to the indoors. We took many fun-filled field trips, including hiking in the mountains, biking to a town in the valley, learning about the Swiss democratic decision-making processes, meeting with provincial officials, and visiting a cheese-making farm. The learning even transcended international boundaries with the famous YES Cultural Night, where participants dressed up in traditional costumes, performed an Australian slang comedy, and danced away to authentic Middle Eastern, Latin American and African music.

In all, the YES summit paints a general yet comprehensive introduction to sustainable development—touching on scientific, policy-making and even the spiritual aspects. I would highly recommend the summit to anyone who is project-oriented, open-minded and interested in making his/her community a more livable place. More importantly, the learning and advocating for sustainable development does not end with the summit. There are ample opportunities to stay involved as a YES alumnus, e.g. further work in a Regional Working Group or the Corporate Social Responsibility team. If you are interested in applying to YES, all you have to do is fill out an online application and write a short essay. All travel and lodging arrangements will be made for you by YES. For more information, please visit www.globalsustainability.org/content.cfm?uNav=499.

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Youth and Sustainability
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