

## *EXPLORING POSITIVE GROWTH: THE SUSTAINABILITY INITIATIVE AT ITHACA COLLEGE*

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**ABSTRACT:** A summary of Ithaca College's multi-faceted sustainability activism and decision making on campus and its involvement in sustainable development within the broader community.

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### **Introduction**

Ithaca's sustainability initiative has three distinct parts: developing and delivering sustainability-themed curricula and encouraging research that helps solve sustainability challenges; encouraging more sustainable decision-making in campus operations in order to create a supportive "living-learning" environment that models and reinforces the sustainability principles learned in our classrooms; and active outreach to members of our campus community and the area around us about adopting more sustainable choices and encouraging positive action. This article is designed to accompany a poster presentation that illustrates many of these points.

### **Curriculum and Research**

#### ***"The Finger Lakes Project"***

Ithaca College's Finger Lakes Project is a sustainability education workshop inspired by the University of Northern Arizona's Ponderosa Project and Emory University's Piedmont Project. The workshop, begun in 2006, is aimed at Ithaca College faculty and regional educators in upstate New York. The Finger Lakes Project is offered each May in conjunction with the College's Summer Faculty Institute, which provides logistical and financial support. The one-day workshop includes presentations and participative activities on global climate change and its impacts on human society, how sustainability addresses both environmental and social issues associated with climate change, and the infusion of sustainability into college academics, operations and student life. Mini-grant applicants and recipients from our Partnerships in Sustainability Education program are required to attend the workshop. During the workshop, previous mini-grant recipients present short overviews of how they were able to incorporate sustainability into their educational activities. The workshop encourages participation by attendees through group exercises, discussions, and a walking tour.

#### ***"EcoVillage-College Partnership for Sustainable Culture Change"***

In 2002, the Ithaca College Environmental Studies Program partnered with EcoVillage at Ithaca (EVI) an internationally recognized experiment in sustainable community, to develop curricula on the Science of Sustainability, under the auspices of a three-year National Science Foundation grant. The resulting collaboration has been enormously successful, helping to catalyze major changes for both EVI and IC as well as strongly influencing the surrounding community. The Partnership is now included in the permanent budget of the college.

The Courses on Sustainability have strongly emphasized field trip and community-based project components. Students work closely with community guides to create multi-semester projects that have had strong positive impacts at EVI, on the campus, and in the larger community. The Curriculum Development Mini-grants and accompanying faculty development retreats have stimulated new teaching initiatives in a wide variety of IC departments and encouraged Ecovillagers to develop projects and course modules used in those departments.

Perhaps most importantly, the partnership has closely linked the two very different cultures together in ways that have created delightful synergies and surprising ripple effects. It has even led to major initiatives in the region, including the formation of Sustainable Tompkins, a regional sustainability coalition; Ithaca Carshare, about to launch its program; and a series of sustainability education trainings for K-12 teachers, administrators and school board members.

### ***“Sustainability academic projects”***

Much of our coursework focuses on applied, experiential learning, because we recognize the educational value of this pedagogy. One of the hallmarks of an Ithaca undergraduate education is the opportunity students have to conduct applied research with faculty. Many have worked with operational managers to research and analyze campus sustainability challenges. Their work has proved invaluable to the operational managers – the students provide the “intellectual muscle” to research best practices, to conduct cost-benefit analyses, and offer recommendations for more sustainable decisions. David Ross ‘04, for example, analyzed campus energy use and made a series of recommendations of energy efficiency upgrades. In a continuing series of internship projects, two students have collected the data necessary to complete the college’s assessment of its greenhouse gas emissions for the years 2001-06, using the *Clean Air-Cool Planet* inventory.

Faculty members in the environmental studies program encourage applied learning in their courses. Some of the “3D sustainability projects” students have created include EarthCafé 2050, an interactive demonstration of ecological footprinting, a demonstration kiosk of sustainable building materials, and two mobile photovoltaic systems that have been used as educational tools and as independent power sources for outdoor campus and local community events.

A number of courses have provided opportunities for students to learn by performing projects in the greater Ithaca area. Students in a public relations course researched local pedestrian issues in order to develop an educational campaign, offering their recommendations to the Ithaca Common Council in a public session. Environmental Studies students have worked with a local coffee roasting company to assess its carbon impact and waste management strategies.

### ***“Innovative Sustainability Curricula”***

In Spring 2005, using criteria established by the U.N. Decade of Education for Sustainable Development, we inventoried our course offerings, seeking those that offer “significant content” in sustainability – over 100 courses were identified, with many more courses being added to the catalog since then.

In response to student interest, the Office of Residential Life created an affinity housing option called the Sustainably Conscious Living Community (SCLC). For the first two years, the community was located on the first floor of a traditional residence hall, offering this option to two dozen students. This special learning community is supported by a faculty fellow and the residents have academic requirements to plan floor presentations, take field trips to locations like EcoVillage and the Farmers Market, gather together for communal meals they prepare in the residence hall kitchenette, and to reflect upon their experience. Because of steadily increasing demand, in Fall 2007, the SCLC will relocate to and completely take over a newly refurbished residence hall. The sixty students opting to live more sustainably will be supported by specially trained resident assistants and two faculty fellows.

One of the courses specially developed for first year students introduces them to sustainability concepts as presented by an interdisciplinary team of faculty representing business, sociology, and natural sciences. Through team projects, students are offered the opportunity to study a set of campus sustainability challenges, so they learn more about the institution as they absorb new knowledge and gain skills. This course, “*Sustaining Our World*,” was recognized in 2006 by the Campus Ecology program for innovative curriculum development. The first year this course was offered, student teams studied campus resource use. One team compared the actual energy use of several campus buildings against the expected reductions in energy use from the “green building” features of the new School of Business. A second team examined the generation of paper towel waste in residence hall bathrooms and recommended replacing towel dispensers with hooks to support students’ use of their own towels. In Fall 2006, teams studied “green products” available on campus. One team tested the performance of 100% recycled content office paper, while another team surveyed the campus community about its willingness to adopt paper-saving techniques like duplex printing and setting smaller document margins. The third team explored student willingness to purchase recycled-content office supplies, organic foods, and other “green products” and

gauged the acceptable range of price premiums for such products. Institutional leaders and relevant operational managers are invited to the students' final presentations to hear their reports and recommendations.

In another example of a unique collaboration that unfolded over four semesters, assistant professor Michael Smith, who teaches a "*History of U.S. Environmental Thought*" course, guided collaborations between student project teams and professional archivists to use primary source material housed at The History Center of Ithaca to further investigate past local environmental issues. At the end of each semester, students delivered their findings during a free evening public presentation at The History Center. The archivists at The History Center report that – from working with the students to conduct this research – they learned more about the museum's holdings; the student team reports have been permanently incorporated into the records of the History Center.

Tom Pfaff, associate professor of mathematics, uses energy and environmental data in introductory calculus courses. Students learn about curve-fitting and regression analysis by analyzing these data. Students use the data and calculus concepts to examine "*what if?*" scenarios and then write a paper proposing energy policy based on their analysis of the trends they are seeing.

Astrid Jirka, outreach coordinator for the Study Abroad program in the Office of International Programs, has developed study abroad orientation materials for faculty and students that emphasize sustainability goals. Using case studies, these materials underscore the potential impact of students and faculty on the local communities in which they will be immersed, and encourage their cultural sensitivity to and protection of natural indigenous environments.

## **Campus Operations**

### ***“Energy Conservation”***

Over 80 office, classroom, and residential buildings comprise Ithaca's South Hill campus, and the college currently budgets about \$8 millions annually on energy utilities. Like many campuses, most of the buildings on South Hill date from the 1950s and 1960s, when energy was inexpensive, buildings were inefficiently designed and poorly insulated, and sustainable design unknown. To address escalating energy costs, the administration has become increasingly aggressive in its efforts to improve energy performance. Facilities managers utilize a complex direct digital control system through which it can automatically power down motors and drives for HVAC systems on a timed basis at the end of regular work or class days, or in response to building air quality sensors, or upon demand in order to respond to utility calls for peak load shaving during cooling periods when the power grid is under stress.

In order to make effective decisions about which efficiency upgrades and building envelope modifications will have the greatest impact, the college has gradually installed building sub-meters for electricity and natural gas to collect data on energy use. More than 50 of the 81 main campus buildings are now sub-metered for electricity and 8 are sub-metered for natural gas. A monitoring and tracking system records and stores this data, which includes weather information and minimum and peak loads. Several buildings have multiple sub-meters that separately track energy used to power air conditioning chillers, energy to support forced air flow drive motors, and electricity used for lighting and office and classroom equipment, allowing for a more refined analysis.

Facilities professionals have used this data to target HVAC system upgrades, incorporating new motors, drives, and monitoring systems that are expected to recoup another \$200-250,000 annually. Electricians have replaced incandescent bulbs with compact fluorescent lamps where possible and installed LED exit lamps, all reducing energy use. Major campus re-lamping projects have been undertaken, replacing T12 fixtures with T8 or T5 fluorescent fixtures to provide large-scale energy savings. Over winter break, campus electricians re-lamped all four gymnasiums, doubling the lumens to meet NCAA athletic regulations for competitive space, yet halving the building's electrical use – a 2-1/2 year payback is expected. A recently completed Library re-lamping project provided better lighting for study and work while allowing for the complete removal of about 400 fixtures.

Some of the other campus strategies employed to conserve energy include purchase of EnergyStar® compliant computers, network printers, copiers, FAX machines, and appliances. In addition, the installation of Maytag high-efficiency laundry equipment is projected to save ~1,500,000 gallons of water and 400,000kWh per year. Working with the New York State EnergySmart Office program, a campus-wide audit was conducted that outlined strategies to save over \$147,000 annually if all recommendations were implemented. Vending equipment across campus is being upgraded to incorporate high-efficiency EnergyStar Tier II equipment, and installing Vending Misers on some units.

Facilities implemented another major energy strategy, instituting thermostat set points in May 2006. By raising building cooling temperatures to 74-76° in summer months and lowering winter heating ranges to between 69-71°, annual energy savings are projected to range between \$125-\$200,000.

### ***“Sustainable Facilities”***

Ithaca’s grounds crews employ integrated pest management (IPM) protocols and utilize sophisticated turf management techniques, including use of compost from our food-waste composting process as mulch and soil amendments, to provide attractive grounds without extensive use of chemicals.

Ithaca maintains an active recycling program that separates and collects office paper, corrugated cardboard, metals, and bottles and cans, and separates these from waste matter. Facilities Services maintains a composting program that accepts dining hall food waste and compostable service materials from ‘zero waste’ catered events.

Facilities Services has integrated *GreenSeal*™ certified cleaning and restroom paper products and replaced paper towel dispensers with non-electric models.

Ithaca offers free bus passes to faculty and staff and underwrites 30% of the purchase cost for student passes. The Sustainable Transportation Committee strategizes ways to increase public transit use. Ithaca supplies office space for *Ithaca Carshare*™ which will install a “pod” of cars on campus. Facilities purchased two *GEM*™ cars for deliveries and the campus fleet includes two Toyota *Prius*™ sedans. Transportation staffers “rightsize” the purchase of new utility vehicle purchases to most efficiently meet needs and they have instituted vehicle idling policies to save fuel. Facilities’ transportation group is currently seeking a stable source of biodiesel fuel for landscaping equipment.

Grounds professionals and environmental studies faculty and students worked together to develop an alternative landscape test plot. Scientists conduct research on species biodiversity, soil chemistry, and plant hardiness in the plot. Grounds crews may replicate this cost-saving method on other problematic terrain on campus.

The Natural Lands Committee, which is co-chaired by Facilities professionals and a faculty member in Environmental Studies, guides the appropriate use of three college-owned wooded areas. One area containing unique natural features was declared a limited access preserve, and deemed the other two undeveloped properties as reserves usable for classroom, research, and recreational purposes.

### ***“Sustainable Enterprise”***

In Fall 2006, Dining Services opened a dining hall line that features organic and local foods. In retail operations, prepared foods are now packaged in compostable bioplastics. Certified fair trade coffees and teas are sold on campus. Catered and picnic events on campus, like the annual CommUnity picnic following Convocation which serves 3,500, feature compostable corn-based PLA plastic cold cups and eating utensils and biodegradable paper plates and napkins. All food waste and compostable tableware is collected for composting. Recycle mugs are issued to all incoming students – reuse of these mugs for refills of coffee or fountain drinks purchased at retail food operations gains the bearer a discount. The “*Spotted*” program additionally rewards those are seen reusing their beverage mugs, giving them free refill coupons. Dining Services disposes of waste cooking oil to a contractor who resells the purified end product as “*veggie diesel*.”

The *Staples*™ office supply contract ordering system highlights “green” products so they can be easily located. The first products listed on the College-approved paper products list all contain high levels of recycled content. Duplicating Services tested and approved 100% post-consumer recycled content office paper for purchase through this program, in addition to 30% recycled content paper products. The Print Shop also contracted to purchase 100%-recycled-content paper for all College letterhead bond at no additional cost to campus departments. The two watermarks in this special paper – used for the most important College correspondence - are the Ithaca logo and the chasing-arrows recycling symbol.

Information Technology Services, through its Technology Renewal program, replaces computers and network printers on a three-year lease cycle, ensuring that staff and faculty and students in computer labs have the most up-to-date office productivity tools. Most equipment provided through the Renewal program is both *EnergyStar*™ and *EPEAT*™ compliant. Purchasing instituted cell phone recycling and contracts for recycling of surplus peripherals and printers not included in the technology renewal program.

The Bookstore offers recycled-content products, including notebooks and greeting cards, and sells certified sweat-shop-free clothing. The Bookstore recently opened a special sustainability-themed trade books section. The

Bookstore also saves and reuses almost all packaging materials that new merchandise comes in. The Textbook Buyback program annually recycles used textbooks, offering cash to students to purchase no longer needed textbooks, enabling the Bookstore to make available used textbooks at reduced prices.

### ***“Sustainable Construction”***

Construction continues on the new home for our School of Business. The 34,000 square foot building, designed by Robert A.M. Stern Architects, is on schedule to open for classes in January 2008. High performance sustainable design features of this building include: glass throughout the building so that 98% of the building’s usable interior space receives natural light; a lower, visible vegetated roof section that provides maximum insulation value, and white reflective roofing material on the upper deck; a storm-water reclamation system that will provide irrigation and non-potable water for toilet flushing; energy and other utility systems designed to be 50% more efficient than comparably-sized buildings; and use of native landscaping plants that require little maintenance.

On May 25, 2007, Ithaca broke ground on its newest construction project, the Gateway building, being designed by HOLT Architects. Sited adjacent to the *LEED*<sup>™</sup> Platinum School of Business, these two new high-performance sustainably designed facilities will create a strikingly new and improved, sustainable “front door” for the campus. Expected to open in Fall 2008, the 58,000 square foot Gateway building will house offices for enrollment planning (Admission, Financial Aid, Bursar, Registrar), human resources and graduate studies as well as senior administrative offices. In keeping with the college's sustainability commitment, the facility is also being registered to achieve *LEED*<sup>™</sup> Platinum rating. Over 50% of the building's energy will come from renewable sources, including a geothermal system for heating and cooling. Other sustainable features include: ~6,500 square feet of vegetated roof area to replace green space the building occupies; natural convection ventilation pre-cooling the atrium by drawing cooler night air across a north-facing shade garden; sensors that control light fixtures and mechanical ventilation based on natural light levels and occupancy; a 12,000-gallon tank below the garden to collect rainwater from the roof, supplying over 85% of the building's non-potable water. Plan development and fundraising is underway for a new Athletics and Events Center, which will also incorporate high performance, sustainable design principles.

The Physics department tested and developed curricular content to support an innovative pedagogy for teaching undergraduate physics instruction. Called “Student-Centered Activities for Large-Enrollment Undergraduate Programs, or SCALE-UP, for short, this new teaching format combines lecture and lab activities in the same space, supporting active learning through simulations and hands-on activities, and facilitating report-writing and research through networked computers at each student group workstation. In order to create the specialized classroom/lab space, the Physics department created one large room out of three former traditional Physics labs. The design team from Robert A.M. Stern was hired to help make this our first sustainable renovation project. Among the sustainable strategies employed on that project were salvage and reuse of instructional furniture and materials, like blackboards and casegoods, and collection of construction debris and retention of these materials for reuse in other campus projects.

Planning, Design and Construction maintains an inventory of used office furniture and components that they reconfigure to furnish new offices. It is conservatively estimated that the reuse of these still-usable furnishings saves campus departments more than \$50,000 per year.

## **Community Outreach**

### ***“Campus Activism”***

Ithaca College hosted a full slate of presentations and exhibits for Campus Sustainability Day in 2005 and 2006, and plans the same for October 2007. Throughout the year, a “sustainability café” series provides a forum for faculty, students, and staff to hear presentations by campus and community resource people and external experts, and discuss sustainability research and issues.

The Resource and Environmental Management Program (REMP) steering committee advances our Comprehensive Environmental Plan to further “green” campus operations. REMP Reps conduct peer-to-peer education within the residence halls. REMP interns develop educational materials for students, including “*Installments*,” educational pieces designed for placement inside restroom stall doors. Rep Cluster Captains work with residence assistants to conduct floor presentations, update “*Installments*” and post residence hall notice board

flyers, and engage residents' support for recycling and resource conservation efforts, like *RecycleMania* and the "Change Your World" fluorescent bulb swap.

The IC Environmental Society (ICES) oversees the College's organic garden and its "Green Team" that collects recyclables following home football games. ICES annually programs an extensive schedule of events during Earth Week. Students for Sustainability and ICES form the backbone of the Progressive Alliance along with a number of social justice organizations like Students for Fair Trade and IC Feminists, to ensure that social capital issues are mindfully considered. Students for Sustainability have been interested in advocacy and political action, conducting drives to get the campus to adopt the Talloires Declaration and purchase "green power."

The sustainability committee of the Student Government Association (SGA) drafted legislation that called for double-sided copying to become the default setting on campus printers, a measure quickly adopted by the administration. In addition, SGA has initiated so-called "green grants" to student organizations to incorporate sustainability into their event planning.

The School of Business has developed a Business Sustainability Ambassadors program, a cadre of specially-trained student leaders who will educate their peers about sustainability and lead informational tours of the new School of Business building when it opens.

Faculty in the Center for Natural Sciences convened the CNS Sustainability Group (CNSSG), focused on supporting more sustainability content in science curricula, providing applied sustainability research opportunities for students, and using their building – which, with its large quantity of fume hoods, is one of Ithaca's largest consumers of electricity per square foot – as a "laboratory" to model resource conservation measures. CNSSG members actively solicit engagement from students, staff, administrators, and faculty from other disciplines and schools to create broad campus sustainability support. CNSSG has issued an open invitation to their academic colleagues from all other disciplines and programs across the institution and any interested students, staff and administrators to become actively involved in what will now be known as the Ithaca College Sustainability Group.

Community Plunge, held in the week before the start of the fall semester, provides Ithaca students with opportunities to perform sustainability-related service projects in the greater Ithaca area. In August 2006, 117 Ithaca first-year students and 30 upperclassmen took "the Plunge". Several of the Plunge sites offered sustainability-focused activities, including: performing trail work for the Finger Lakes Land Trust and the Cayuga Nature Center; removing invasive species along the Six Mile Creek nature trail; painting and rearranging stock at Significant Elements, a local architectural salvage enterprise; and helping the Southern Tier AIDS program prepare for its annual Ride for Life fundraiser.

In Fall 2006, student leaders developed the *ICare* campaign, an awareness and action program designed to increase personal responsibility, develop campus pride and promote greater environmental sustainability by Ithaca College (*IC*) students. They developed a custom logo and "*ICare, so I . . .*" branded labels began appearing across campus on light switches and computer on/off buttons to encourage energy conservation, on dining hall sneeze guards and napkin holders to discourage food waste and support better food choices. Refrigerator magnets designed for off-campus student kitchens encourage responsible partying, including self-control for alcohol consumption and noise levels, and being a "better neighbor."

The *TRANSform* program raises funds for sustainable microenterprise development in an Ecuadorean cloudforest reserve through financial sponsorship of campus "catalysts" willing to forego their single occupant vehicle in favor of using alternative forms of transportation to commute to school.

During AY2006-07, Residence Hall Association sponsored two rounds of Energy Challenges, pitting similar style residence halls against one another to reduce their energy consumption. Winning halls received bragging rights, a specially-created "loving cup," and a pizza party for their efforts.

### ***"Local Community Involvement"***

Community outreach efforts have been an important part of the Ithaca student learning experience regarding sustainability. Faculty and students from the college played a major role in the establishment in 2004 of Sustainable Tompkins, a broad-based coalition of citizens, community organizations, elected officials, educators, and professionals working to promote a more sustainable community. Funded by Ithaca College, the Park Foundation, Cornell University, and several area businesses, Sustainable Tompkins launched a series of study circles in Spring 2004 on such topics as renewable energy, sustainable design, and community well-being. More informal gatherings, known as "Sustainability Salons," also occurred weekly in five coffeehouse locations around

the county. A Sustainable Tompkins project team, in collaboration with Tompkins County Solid Waste, developed Finger Lakes Buy Green, a web-based search engine for local sources of sustainable products. Current Sustainable Tompkins projects include monthly educational potlucks, the development of a green building resource hub, an on-line interactive map of sustainable businesses and groups, encouragement of sustainable land use and planning, increasing use of alternative fuels and public transit, and an energy-conserving home improvement training program conducted in under-served communities.

In January 2005, in partnership with the Tompkins County Chamber of Commerce, Sustainable Tompkins mounted a very successful Sustainable Technology Showcase. Geared to the local business community, this event highlighted the benefits of sustainable operating practices and environmentally-friendly products through presentations and product exhibitions by two dozen firms. In January 2006, Sustainable Tompkins offered a "Business Sustainability Makeover" workshop, again with the Chamber of Commerce and Tompkins County Solid Waste Management Division. Upcoming Sustainable Tompkins events include a regional health and sustainability conference in September 2007, being organized in conjunction with the School of Health Sciences and Human Performance at Ithaca College, and a renewable energy conference on campus in November 2007, being developed with the Tompkins Renewable Energy Education Alliance (TREEA). Sustainable Tompkins and TREEA, a renewable technology advocacy group convened by Ithaca faculty and staff with membership from Cornell, the county, and various local businesses and community members, also co-hosted a community forum on wind energy in Fall 2006.

Another important vehicle for outreach regarding sustainability issues has been the Finger Lakes Environmental Film Festival (FLEFF). Originally sponsored by Cornell, FLEFF began in 1998. Ithaca College became a major venue for FLEFF over the past few years, providing increasingly significant funding. Ithaca took on primary sponsorship in 2005, and this spring's weeklong festival featured more than 150 public events. These included 97 films and videos representing 41 nations, over 50 featured guest artists, scholars, writers and activists, seven festival mini-courses taught by IC faculty, and three radio programs, as well as a specially commissioned live archival film remix, an international online digital art exhibition, ambient media on plasma throughout the campus and community, and a curated show on gaming.