The Campus as a Living Lab

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Rochester Institute of Technology (RIT) serves as a case study of a living lab for campus sustainability.

A university, its operations, and the community in which it is located can serve as a living laboratory and incubator for sustainability theory and practice. With real estate, business operations, infrastructure to maintain, and multiple stakeholders and governing bodies that influence decision-making, university campuses are a microcosm of what students will encounter in their future careers and civic engagements. Every challenge is a potential research or learning opportunity for stakeholders (not only students, but also faculty, staff, and local communities). Campus sustainability officers work across their institutions and build bridges between the academic and operational domains to foster this type of environment.

What is a Living Lab?
The term “living lab” has become a common phrase in a number of different disciplines and organizations. Used in the context of campus sustainability, the term implies the integration of the academic and operational spheres of a university, creating experiential learning and applied research opportunities, while enhancing the university’s ability to address sustainability challenges.

The concept is increasingly being implemented successfully at the individual building scale, often in buildings that house environmental or sustainability academic units such as the Adam Joseph Lewis Center for Environmental Studies at Oberlin College, the Centre for Interactive Research on Sustainability at the University of British Columbia, Bren School of Environmental Science and Management at the University of California Santa Barbara, and Rochester Institute of Technology’s own Golisano Institute for Sustainability. The new knowledge and research developing from these facilities is exciting; providing students the opportunity to learn both in and from these spaces.

However, these facilities only reach a limited audience; one that likely already has a positive bias toward sustainability. In order to drive systematic change within a university or other large organization, sustainability has to be understood and embraced by a majority of stakeholders, not just the existing choir. Therefore, to truly create living labs for sustainability and drive meaningful change, campuses are moving beyond building projects and exploring opportunities within campus infrastructure and operations as a whole.

Lessons from RIT
Rochester Institute of Technology (RIT) is a suburban campus in upstate New York, with over 18,000 students and roughly 3,800 faculty staff. RIT emphasizes cooperative education and has degree programs ranging from engineering and computer science to visual arts and American Sign Language-English interpreting. A number of sustainability initiatives are underway at the university, including an aggressive goal of carbon neutrality by 2030. Even with strong support from senior leadership, driving change in a large institution can prove challenging. Building support within all levels of the organization is essential, and the most effective way to do this is to establish goals and initiatives that resonate with those stakeholders. At RIT, what began as a simple student inquiry about food waste and equity is growing into a movement mobilizing a large portion of the campus population around our broader sustainability goals.

Recover Rochester
In 2012, a student doing a research co-op on food waste within New York State at the Golisano Institute of Sustainability began looking into RIT’s practices. He reached out to me expressing concern about the amount of edible food that was being thrown away in dining centers at the end of meal services. Food waste is not an issue unique to RIT. In fact, it is estimated that nearly 40% of edible food in the United States goes to waste. The production of which uses roughly 25% of all of the freshwater consumed in the United States, as well as 300 million barrels of oil.1 Curbing this waste could go a long way in meeting the food needs of the world’s growing population.2

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by Enid Cardinal

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After working through the food safety procedures and logistics, students launched a pilot project in partnership with campus dining and the regional food bank to capture excess prepared foods and redistribute them to area meal centers/soup kitchens. In a few short days, more than 300 lbs of food had been collected and donated. The results were eye-opening for all involved and led to a number of process changes that further reduced food waste and cut costs. Additional students joined the program and formed Recover Rochester, a student club that collects and redistributes food to area meal centers weekly. Annually, the club redistributes approximately 15,000 lbs of food to those in need.

The success of that program led one dining manager to explore additional opportunities for student engagement and waste reduction within his operations, viewing it as an extension of the classroom. One particularly successful research project resulted in the elimination of disposable containers in his unit. The student club, Engineers for a Sustainable World, conducted life cycle analysis of various to-go container options; and capstone students in RIT’s Environmental Sustainability Health and Safety program were enlisted to analyze where customers were eating the food they were getting “to-go”. As a result of their findings, his dining venue switched to reusable to-go containers and reverse vending machines to take back empty containers. This switch eliminated the purchase and subsequent landfilling of 94,000 disposable to-go containers annually. He now works with new classes every semester on topics ranging from packing science to graphic design.

**RIT FoodShare**

The dining centers are only one source of food waste generated on campus; there are many others, including leftovers after events and nonperishable items that students discard when they move out at the end of a semester. So in the fall of 2014, students in a Campaign Management and Planning class in the School of Communication were presented with a challenge: design a campaign that will enable RIT to safely redistribute leftover food, which Recover Rochester cannot collect, and address food insecurity on campus. Over the course of the semester, the class examined the issue from a variety of lenses. They proposed and ultimately helped create RIT FoodShare.

RIT FoodShare is a two-pronged approach. A social media strategy was employed to share food from events. Through a Facebook group, faculty, staff, or students can post notifications whenever there is free food available somewhere on campus from a department or organizational event/activity. Members of the Facebook group receive alerts...
anytime there is a new post. Created on December 3, 2014, the group had 1,189 members and received an average of three to four posts per day by the end of the spring semester.

The class felt strongly that the social media strategy alone would not be sufficient and advocated for the second component. Thus the FoodShare Center was born, a physical location where any member of the RIT community can donate non-perishable items, swap out items they have for those they want, or take items they need with no questions asked. As a result of a partnership with the Center for Residence Life, Student Government, and other campus departments, the center took shape quickly. To stock the shelves initially, the class reached out to student clubs and Greek organizations for help with food drives. The long-term strategy to maintain inventory ties into another campus waste reduction initiative. More than 100 users have visited the center in the three months since it opened.

Goodbye Goodbuy!
At the end of a semester when students leave campus, they discard an incredible amount of usable goods. Building on the campus’s increasing interest in food waste, RIT piloted the collection of nonperishable food, toiletries, and cleaning products from students moving out of the dorms in May 2014. Over the course of one week, more than 1,600 lbs of food and almost 400 lbs of toiletries and cleaning products were diverted from the landfill and redistributed to the regional food bank and area shelters.

The success of the 2014 pilot led students to coordinate and manage a full-scale collection program, Goodbye GoodBuy!, in May 2015. Students added furniture, textiles, electronics, office supplies, home décor, and any other useable items to the acceptable items list. The 4,874 lbs of nonperishable food items collected fully stock the newly opened FoodShare Center with excess being donated to area food pantries. All other items were sold to students.

Goodbye Goodbuy!
at a large move-in sale in the fall and revenues from the sale will be reinvested in the program.

The partnerships that have resulted from these programs are helping to drive new initiatives and research questions all over campus. Recent student projects have examined campus energy consumption, food sourcing, and ecosystem services, to name a few.

Conclusion
The programs discussed above are replicable on other college campuses. In fact, there are national organizations that can assist schools with two of the initiatives. Food Recovery Network³ (FRN) and Post-Landfill Action Network⁴ (PLAN) work with students across the country to develop food recovery and waste reduction programs on their campuses. Both organizations were founded by students that had started programs at their own schools and recognized a need for their expertise on other campuses.

When the campus and community are treated as living laboratories for sustainability, students have the opportunity to examine how complex global challenges are manifested at the local level. A variety of stakeholders are engaged as they examine the issues, evaluate tradeoffs, and formulate potential solutions—increasing buy-in as projects develop. And as seen with FRN and PLAN, sometimes those experiences turn into careers.

References