

# **Sustainability at Smith Project: Environmental Impact in Smith Residences**

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EVS 300

**Abstract:** Educational institutions have the ability and the important responsibility to address issues of sustainable development and environmental issues within the student body. Students in Smith College residences alone consume large amounts of resources and make substantial contributions to the waste stream during the academic year. The goal of my project was to encourage students to question and adjust their environmental impact through improved infrastructure for environmental education in houses, in addition to new recycling and energy saving programs. In creating these programs, I met with Bob Pattee, the director of Smith Physical Plant, and Angie Fowler, the director of the Five-College Recycling Program and the Smith Earth Rep Coordinator. For this project, I created a paid student position under Bob Pattee that is responsible for educating Smith students about their environmental impact, specifically through biannual charts showing resource consumption over time from Physical Plant data. I also provided a monetary incentive and improved resources and organization for Smith house Earth Reps to be more effective in providing environmental information to their houses. I made several improvements to the recycling program in Smith residences, including a paid student position for recycling pick-up outside of student's rooms and improved advertising for the recycling competition between houses. Additionally, I created a program to reduce student energy consumption by supplying them with more efficient light bulbs to install in their rooms. Research has shown that environmental impact education can have a positive effect of individual behavior (Geller 1989; Buttel 1987 in Creighton 1998). These programs also provide incentives and make it more convenient for students to take responsibility for their resource consumption and waste contributions. I feel that I have created a strong base for improved environmental education in Smith residences, but awareness is only the first step to creating solutions. I would recommend that future programs be dedicated to encouraging a sense of place and environmental stewardship among students in the hope that they will take those values with them when they leave Smith.

## **INTRODUCTION**

Sustainable development was defined by the Brundtland Commission as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED 1987 in White 2002). Policy makers recognize that one of the key elements in promoting sustainable development is education. Chapter 36 of Agenda 21 states that “education is critical for promoting sustainable development and improving the capacity of people to address sustainable development issues” (UNCED 1992 in Dillon and Teamey 2002).

As educational institutions, colleges and universities have a unique opportunity, and some would say responsibility, to provide students with a basic understanding of environmental issues and the concept of sustainable development. These institutions can teach and demonstrate environmental principles and stewardship by taking action to

understand and reduce their impacts on the environment (Creighton 1998). College is an especially important time for students to learn about such issues, because in many instances it is the first time students are independent enough to make their own choices about how they spend their time, what they eat, how they get around, and how long to shower (1998). Thus colleges and universities have the unique opportunity of shaping the values of future leaders in addition to becoming a more environmentally responsible member of the global community by reducing their environmental impact.

As presented by Bob Pattee, the director of Smith College Physical Plant, the Smith community is responsible for huge amounts of energy and other resource consumption, as well as the generation of many forms of waste during the academic year (2003). Specifically, students in Smith residences have a large impact on the environment, and thus have opportunities to use their living facilities in ways that are environmentally friendly or wasteful. Sarah Creighton in “Greening the Ivory Tower” points out that “some students will be motivated to take additional action, perhaps in houses where they cook for themselves or in a campus ‘environmental house’ . . . Environmental actions by college dormitory residents can be discouraged when students feel that the high cost of room and board entitles them to all the electricity, heat, water, and waste generation they want” (1998). If anything, students in Smith residences will be more prone to adopt the latter pattern of resource consumption due to its high tuition costs. My goal for this project was to reverse this tendency by creating the infrastructure to educate Smith students about their environmental impact in residences, and to create programs and incentives to reduce their impact as individuals and as a house.

## **METHODS**

My first step was to clearly and specifically define my goals for the project. I knew that Bob Pattee, the director of Smith College Physical Plant, was motivated to improve environmental impact education at Smith but had no way to get this information from Physical Plant to the Smith community. Thus my first goal was to create a student position that would serve to summarize and interpret environmental impact data from Physical Plant, and present it to the Smith community in an informative and influential way. This required the additional organization of a medium through which this

information could be distributed. In addition to creating the infrastructure for delivering environmental information to Smith residences, I wanted to create some programs that would immediately reduce environmental impact in houses upon implementation. My priorities were energy consumption and recycling practices in student houses.

On April 4<sup>th</sup> 2003, I met with Bob Pattee to discuss his interest in creating a student position to serve as a link between Physical Plant's environmental impact data and Smith residences. He was very open to the idea and had even tried to establish such a position earlier but had not known how to advertise such a position and thus had not received enough response from interested students. I was able to suggest better methods for advertising the position in the future. I expressed the need to have some way of distributing the information gathered by this student to Smith Residences and asked if he knew what organization the House Earth Reps were affiliated with. He didn't, so I decided to research this further before our next meeting.

I also discussed my desire to address energy consumption and recycling in Smith houses. I proposed a program in which Physical Plant could provide students with more efficient light bulbs to replace the incandescent bulbs in their rooms. He was very receptive to the idea and suggested that I conduct a survey in my own house to find out the quantity and type of light bulbs students are using in their rooms.

In addition, I suggested that recycling in Smith houses be improved by providing separate trash cans in each student room in addition to the recycling bin currently provided, as well as putting large recycling bins next to the trash cans on every floor, not just the first floor. He was open to the idea of supplying trash bins to student rooms, and also suggested issuing compartmentalized recycling bins. However, he was not open to the idea of large recycling bins on every floor and suggested instead that he could pay a student to pick up recycled materials outside student doors and bring them to the large bin on the first floor. We scheduled another meeting a week later to discuss the results of my Earth Rep research and house light bulb survey.

I conducted a survey via e-mail in Albright house, where I live. The survey consisted of 2 questions:

- 1) How many light fixtures do you have in your room (excluding the permanent one on the wall and any that belong to roommates)?

2) What type of light bulbs are in them (i.e. standard incandescents (the cheap ones you can buy everywhere), compact fluorescents, HIDs, etc.)?

In addition I contacted the Student Government Association and discovered that House Earth Reps are a residence life position. I contacted Kathy Zieja, the director of Residence and Dining Services, who forwarded me on to Angie Fowler. Angie Fowler is the director of the Five-College Recycling Program, and she has also elected to take on the responsibility of Earth Rep Coordinator. I contacted Angie Fowler to see if she was open to the idea of modifying the Earth Rep position in Smith houses. I invited her to meet with Bob Pattee and I on April 16<sup>th</sup>, and she agreed.

In the meeting with Bob Pattee and Angie Fowler, Angie discussed her frustrations with the current Earth Rep program. We discussed the possibilities of offering incentives for Earth Reps to become a stronger force on campus, and suggested ways to better organize and provide new programs and information for Earth Reps to bring to their houses. We also discussed our ideas for improving recycling in houses, and Angie informed us of her past efforts to improve recycling at Smith that had not been very successful. She was very positive about our suggestions. In addition, I reported my results from the light bulb survey in Albright. Bob Pattee was confident that the initial cost of providing more efficient bulbs to Smith students would easily be paid for in the resulting energy savings. We decided that a bulb exchange could take place at Friday afternoon teas in Smith houses. Bob Pattee and Angie Fowler asked me to write proposals for these changes and programs that would eventually be submitted for approval by Student Affairs.

I wrote up a description of the student position under Bob Pattee and called it the “Smith Environmental Education Worker”. I proposed several modifications to the Earth Rep position, including incentives and improved organization. I also proposed the changes to recycling in Smith Houses, including a “Recycling Technician” in charge of recycling pick-up outside student’s doors. Additionally, I described the light bulb exchange program, called “A Bright Idea”, which would provide Smith students with more efficient light bulbs instead of incandescent bulbs.

Bob Pattee, Angie Fowler, and I had scheduled a meeting to go over these proposals so they could provide feedback. Unfortunately, both of them had alternate

engagements come up at the last minute and they both had to cancel. I e-mailed them my proposals and received feedback that way.

Finally, I prepared a folder of information and suggestions for the Smith Environmental Education Worker and Bob Pattee. This contained information about my efforts and my desire that they be followed through and implemented. It also contained several ideas for other projects that I believe will further improve environmental education at Smith, as well as suggestions for Bob Pattee for more successful advertising of the position.

## **RESULTS AND DISCUSSION**

### **Smith Environmental Education Worker**

This would be a paid student position initially supervised by Bob Pattee, the director of Physical Plant. There are no restrictions on the number of individuals employed, the number of hours worked, or whether or not the student is on work-study. The student must be motivated to improve environmental education at Smith. The responsibilities of this position would include:

- compile, assess, and distribute updated environmental impact information each semester from Physical Plant data
- create environmental education flyers to be distributed to the Smith community via house Earth Representatives (ie. “This is how much you can save if...”)
- finalize and implement “A Bright Idea” program (discussed later)
- create opportunities for Smith faculty and staff to speak at houses about their role in environmental issues (ie. Bob Pattee, Dick White)
- create other projects addressing environmental issues at Smith (Appendix I: Suggestions for Future Projects)

This is a flexible position that can be adjusted according to the student’s interests, as long as it results in the education of Smith students about environmental issues, specifically on a local level.

Environmental education provides opportunities for individuals to examine their own practices (Dillon and Teamey, 2002). Research has shown that feedback and information about personal environmental impact can have a positive effect on individual behavior (Geller 1989; Buttel 1987 in Creighton 1998). A few years ago, the energy manager at the University of New Hampshire started a program to reduce energy consumption that included printing out monthly graphs comparing energy usage over time. The program measurably reduced electricity use and provided a means by which individuals could see measured results of their efforts (Creighton 1998). These findings suggest that providing environmental impact information from Physical Plant to students is likely to reduce resource use and waste generation in Smith residences.

In addition to environmental education responsibilities, the Smith Environmental Education Worker will be able to affect immediate change by implementing programs such as the “Bright Idea” teas. Even if student habits remain the same, simply installing more efficient light bulbs will automatically lower energy consumption in houses. It is my hope that education efforts will also contribute to positive changes in resource use patterns in residences.

### **House Earth Representatives**

Each house at Smith has an Earth Representative that has been nominated by house residents to provide environmental information. Earth Reps are currently a volunteer position, and communication between Earth Reps and their coordinator, Angie Fowler (also director of the Five-College Recycling Program), occurs during 3 mandatory meetings throughout the semester. Recently, attendance to these mandatory meetings has been minimal unless strict consequences for missing meetings are created. Angie Fowler says that the Earth Reps in Smith houses are “more than 50% not functioning.”

The network of Earth Reps at Smith is an excellent, already existing resource for distributing environmental information to students in their residences. Unfortunately, the incentive and organization needed to make this network function are clearly not there. I proposed a stipend for each semester in order to motivate Earth Reps to their potential. This would be a graduated stipend based on house size, assuming that a larger house requires more time and effort from each Earth Rep.

<b>House Size</b>	<b>Stipend Amount</b>
30 or less residents	\$40/semester
30-70 residents	\$70/semester
70 or more residents	\$100/semester

**Table 1:** Earth Rep stipend amount based on house size.

This stipend would be provided by the physical plant budget and will only be issued after the earth rep has submitted a list of her accomplishments that semester. These must include completion of standard earth rep requirements set at the training sessions at the beginning of each year.

Currently, most house meetings at the beginning of the semester include presentations to house residents by other residence life officers (such as the HR or the RC) containing information pertinent to each officer’s responsibilities in the house. I’m proposing that the earth rep assigned for that semester will also be responsible for presenting standardized information to the house. The earth rep must make it clear to the house that her job isn’t to “do all the work”; she exists to provide environmental education resources (that she gets from earth rep meetings) in order to motivate the house to take responsibility for their own environmental impact. The house can vote whether or not to participate in these activities, but the names of houses that choose not to take responsibility for their environmental impact will be publicized to the rest of the campus. At the house meeting, the earth rep will hold a vote to choose a day of the week designated for recycling pick-up (discussed in “Recycling” section). In the past, Earth Rep responsibilities have only pertained to recycling in houses. I’d like to extend those responsibilities to include energy and water usage, as well as other sustainability issues on campus. Required Earth Rep programming throughout the semester will include a showing of the “Smith Recycles” video, “A Bright Idea” project tea (discussed later), and other water, energy, and recycling education programs determined by the Earth Rep Coordinator. Communication between earth reps will occur via an e-mail mailing list as well as 3 mandatory meetings each semester. The first meeting will be an earth rep training session, and past experience has shown that these trainings are better attended on weekdays. The meetings will be an opportunity to discuss ideas for projects as well as

receive information about programs and campaigns from the Smith Environmental Education Workers.

In addition to environmental education being a proven motivating force for positive behavioral change (Dillon and Teamey 2002), Creighton also claims that “fellow students can be powerful motivators for change by providing information to their peers, serving as examples, discussing and debating issues, and demonstrating their importance” (1998). Once given the incentive and organization to do their job, Smith Earth Reps can positively influence environmental behavior in their houses through educational programming as well as by example.

### **Recycling at Smith**

Smith as an institution is required to meet mandatory levels of recycling set by the state. These levels are currently met, but “we could do better” (Pattee, 2003). Currently in Smith residences small recycling bins are provided in each room, although, in my experience it is often used as a trash can. Angie Fowler, director of the Five-College Recycling Program has created a list of standard recycling responsibilities for house Earth Reps. These include recycling education, making sure each room has a bin, and maintaining the recycling sites in the house. She has also provided a list of suggested recycling projects for earth reps such as coordinating a “recycling pick-up” day where students can leave their recycling outside their door to be picked up. Judging from attendance at meetings and Angie’s comments on the functionality of Smith Earth Reps, it is likely that most of these recycling responsibilities are not addressed in Smith residences. Angie Fowler employs a work-study student to organize the Saturday Recycling Program. This program employs a “Saturday Recycling Team” of Smith work-study students that are paid to sort recycling from various areas of campus for 2 hours on Saturdays. Angie reported that the initial interest for involvement in the project was promising, but the number of workers that actually showed up and followed through was not sufficient. This program would have been more successful if more students were willing to consistently offer their services.

I believe that recycling in Smith houses could be improved by providing more incentive and organization for house Earth Reps (see previous section), issuing

compartmentalized recycling bins to each student room in addition to a separate trash can, and hiring a house Recycling Technician to pick up recycled items outside student rooms at a designated day and time. A Recycling Technician will be appointed in each house by the earth rep and a specific day and time will be designated for recycling pick-up at the house meeting. The responsibilities of the Recycling Technician may be split between a few people depending on interest within the house. This person (or people) will be paid a wage per week to collect recyclable materials outside student's doors and carry them downstairs to the main house recycling bins. It is also expected that recycling participation will be improved by showing the "Smith Recycles" video in houses. The efforts of the Saturday Recycling Team may no longer be needed if Earth Reps and Recycling Technicians in houses are successful. We also want to encourage recycling by advertising a house recycling competition. The house with the most pounds recycled per occupant will be awarded a prize (such as a house tea or extra funds deposited in the house budget).

Introducing compartmentalized recycling bins, a separate trash can, and recycling pick-up in Smith houses should improve recycling participation by making it more convenient for students. Student participation in recycling in Smith houses is also likely to increase as a result of improved education by Earth Reps and the Smith Environmental Education Worker. Creighton also states that "competitions between dormitories have been a successful way to develop awareness for and measure the effectiveness of personal action to reduce waste" (1998). Thus it is expected that a recycling competition between Smith houses will also increase student interest and involvement in recycling.

### **"A Bright Idea" Program**

In my experience I have found the number of lights and appliances left on in Smith residences to be appalling. Although it is much more difficult to change individual behavior, at least initially, energy usage in Smith residences could be substantially reduced if more efficient light bulbs were installed. I conducted a survey in Albright house asking how many light bulbs each student used in their dorm rooms, and what kind of bulbs they were. Approximately 40% of the house responded (n= 29) and of those responses 95% of the light bulbs used in student rooms were incandescent and each

student on average used 3-4 bulbs (mean  $\pm$  st. dev.=  $3.5 \pm 2$ ). An incandescent bulb draws more energy in the form of electricity than it puts out as light energy, making it very inefficient. Incandescent bulbs also only last for 700 hours. There are many light bulbs available today that fit a normal light fixture, create the same spectrum and intensity of light as an incandescent, and are much more efficient because they create *more* light energy than they draw in electricity. These bulbs can also last more than 5 times longer than incandescent bulbs.

If every student replaced their incandescent bulbs with a more efficient alternative, we could save tens of thousands in energy costs (Pattee, 2003)! Unfortunately these bulbs are more costly, and students have no monetary incentive to buy them because they themselves would not be saving on energy bills. Thus I am proposing a program whereby more efficient light bulbs purchased by Smith College Physical Plant are provided to Smith students at house teas through the “A Bright Idea” program. Smith residents will be able to exchange their incandescent light bulbs with more efficient, longer-lasting bulbs at no cost. It is expected that the resulting energy savings will more than pay for the initial purchase of these light bulbs by physical plant. This not only is good for the environment, it may create more money available to other Smith programs during a tight budget time. “A Bright Idea” teas will be part of the required Earth Rep programming each year. These light bulbs will also be available for students to request from Physical Plant at any time of the year.

Once implemented, this program will automatically reduce energy consumption as students install more efficient light bulbs in their rooms. This program will also introduce and foster the idea of responsible energy consumption, which may cause more individuals to think twice about leaving their lights and computers on when they leave their rooms. Students will also be able to see the effect of their efforts on energy consumption in their house in the biannual progress reports provided through Earth Reps by the Smith Environmental Education Worker.

## **CONCLUSION**

Although I felt that creating the infrastructure to deliver environmental information to Smith students was a necessary first step, my ultimate goal was to

encourage and foster student attitudes that would automatically reduce their environmental impact. Jocelyn Brown-Saracino has created an exciting number of programs to encourage a sense of place and desire for stewardship of that place in first-year classes. These students would then be provided with the means to adjust their environmental impact through my programs. In the future I hope that my programs will expand to include more emphasis on environmental stewardship and sense of place. I have provided suggestions to the Smith Environmental Education Worker for projects along these lines (Appendix I).

In the end, student awareness of impacts is the first step to creating environmental solutions. Success of my programs can be measured by the level of dedication and effectiveness of Smith Earth Reps. In addition, the success of the Smith Environmental Education Worker, Earth Reps, recycling program improvements, and “A Bright Idea” program will hopefully be apparent in the biannual progress reports from Physical Plant. I am confident that I have created a strong base for environmental education at Smith College, but there is much room for growth upon that base. My hope is that the Smith Environmental Education Worker will take over where I left off and further improve and create programs that encourage Smith students to take responsibility for their impact on the environment.

## **LITERATURE CITED**

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Pattee, R. 2003. Personal Communication.

White, R.E. 2002. *Sustainability at Smith College*. Unpublished Report. 11 pages.

## **APPENDIX I: SUGGESTIONS FOR FUTURE PROJECTS**

- Create a “Smith Student’s Guide to the Pioneer Valley” to promote a sense of place. This could include: maps of nature trails and bike paths, PVTA info., list of businesses that offer student discounts and/or are locally owned, grocers that sell local and/or organic produce, info about local historical societies
- Create an environmental education website to provide electronically-based info for students (linked to Daily Jolt or Smith web site)
- Follow-up on EVS 300 projects:
  - o “Sense of Place” First-Year Seminar (Jocelyn Brown-Saracino)
  - o Encourage RADS to buy local produce (Mira Kilpatrick)
  - o Greener Transportation on Smith Campus (Jenica Ansanitas and Jasmine Elefterakis)
  - o Paper Usage at Smith (Barbara Schulze)
  - o Etc.
- Create a better composting program in Smith Dining Halls.
- Create a program to encourage students to bring their own plates and flatware to all-college picnics.
- Encourage lap-top use for energy efficiency (although should look into whether disposal of nasty lap top toxics cancels its’ energy benefits)