



Bethune-Cookman University **Daytona Beach, Florida** **Waste Reduction**

SCHOOL

Bethune-Cookman University, private, 4 year, 3,500 students, Daytona Beach, Florida.

ABSTRACT

The goal of this project was to both create a zero emission academic building and encourage sustainability on the campus of Bethune-Cookman through horticulture, composting, and recycling. Unfortunately the project was unable to meet these goals as effectively as first planned. The academic building has taken steps to reduce its electric consumption, eliminated its organic waste outputs, and started recycling. The organic waste is handled by both a traditional and worm composter, which supported the Florida native flower beds at the building. Paper recycling enhanced established and metals/plastics were recycled by the occupants of the building. In response to difficulties in achieving these projects, alternative actions were taken to move forward by helping develop a community garden and organizing a successful community Earth Day celebration.

GOALS AND OUTCOMES

Goals

The overall goals of this project were to create a zero emissions academic building and encourage sustainability across the campus. The primary means of assessing the progress towards this goal was through a greenhouse gas inventory using the CleanAir-CoolPlanet calculator. The Campus Horticulture project would be assessed as to what degree native plants were used in campus landscaping. The Small Scale Composting project would be assessed by participation and use of the composting systems. Then the Campus Recycling project would be based on actual recycled material picked up and campus involvement.

The long term goals revolve around increasing environmental literacy on campus, the degree of involvement with sustainability projects by the campus, and how the Integrated Environmental Science department is able to work with local groups and organizations to further sustainability in Daytona Beach.

Accomplishments and Outcomes

Overall the project was able to make general progress on campus but fell short of either large reductions or concrete results. The majority of this can be attributed to lack of internal support, personal conflict, and the long term nature of a paradigm shift of campus culture. Regarding the greenhouse gas inventory to assess reductions, the building in question was under constant construction and modification the first half of the project. There was no baseline and the data gathered was often skewed. A base load was calculated, with the house using around \$120 a month for electricity, water, and gas. Due to a lack of historical data, no trends could be stated other than the increased awareness and interest in resource saving. A large challenge with the greenhouse gas inventory was conflict with other campus factions and

lack of involvement and interest from the administration, faculty, and students. It slowed down data acquisition and project implementation.

The Campus Horticulture program resulted in two Florida native wildflower beds being planted at the IES building. These beds were used by students and staff to make floral arrangements to be used on campus. This also provided the demonstration to convince the campus to make other areas available for other garden projects and the city to gift land to the college for additional garden projects.

Unfortunately these decisions were made towards the end of the project. The campus landscaping increased its use of Florida Native plantings but no campus policies were established. A demonstration hydroponic system was in operation for several months through work with another student's work, but after his graduation was taken off campus.

The small scale composting project was one of the more unsuccessful projects. It demonstrated that there had to be significant buy in by the campus for it to be successful. Without a point person to collect, maintain, and organize participants it will sit unused. The occupants of the IES building did participate and for the majority of the project put organic trash in the compost not the landfill. Without a point person to ensure that the compost was properly maintained and collected though, support for the project was lost.

The Campus Recycling project did not progress. Again the issue at play was the collection, maintenance, and participation with the project. The campus had a paper and cardboard recycling hauler but no metal/plastic. I tried to work with one of the largest haulers in the area, WastePro, but due to campus conflict the proposal did not proceed. Part of the proposal was to provide recycling bins and stations to reduce the costs of a campus wide recycling effort. The IES building was able to have its paper recycled but through working with the occupants of the building, all other materials were recycled elsewhere.

Overall the project did not have many concrete reductions in the carbon footprint of BCU. It did however increase awareness and interest on campus, with the provisioning of new grounds for campus gardens and talk of incorporating the aspects of a sustainability officer into new job openings. On campus, the project has set the seed for future development now that there is a new administration and more interest from the campus to tackle these projects again. Off campus, the project was successful in helping develop a new sense of a sustainability culture in the city of Daytona Beach.

Challenges and Responses

On campus the primary issue that caused the most disruption was lack of support from the campus. Due to the financial structure of the campus, there was no additional funding from the support of large projects such as the solar PV system. I was able to work with a local PV manufacturer, installer, and electrical provider to create an affordable system, but without additional support the project could not move forward.

Another challenge was going against existing projects by other students. Student government leaders had been trying to organize different projects such as recycling, a healthy food club, and an Earth Day event. When starting my projects I first reached out to existing student and faculty leaders who were pushing forward with their own goals. Initially our goals were in line with one another, there was support for my garden project and I provided information and contacts for organizing a campus "Green Club." Conflict arose from having resources to fund projects and gaining broader support, in addition to

changing objectives and methods. When the faculty sustainability group fell apart, broader campus support was harder to come by and when existing student groups began competing for limited resources, my goals quickly degraded.

The largest impacts the project had were not involved with the campus directly but through a partnership with a local charter school. Due to lack of progress on campus, I had found alternative projects that allowed for more freedom and potential. Working with a community leader, I helped establish a community gardening project that had significant involvement from the BCU campus community, among the other schools and community groups in Daytona Beach. This organic garden was able to offset the costs of the charter school's cafeteria, saving an estimated \$50 a month off of vegetables, fruit, and spices. It also gained attention from the Volusia County Health Department, Healthy Start, USDA, and several other organizations. The garden also received several thousand dollars in grants to support it from the Walmart Foundation and private donations. The garden also acted as a focal point for organizing a successful city wide Earth Day celebration, which had over two dozen vendors, five hundred attendees, and brought together various community groups to coordinate and collaborate on future projects.

In the future the most important change I would make to a project of this nature is performing a more intensive assessment of the current campus conditions, priorities, and resources. Having a better sense of what projects best mesh with existing courses or policies would help better define goal setting to ensure a better use of resources. Additionally attaching projects to a thesis can be problematic if the thesis changes to something that no longer involves the initial projects. It means less time and resources available to pursue the project and does not ensure an effective final product.

Campus Climate Action: Your School's Carbon Footprint

The project indirectly addressed global climate change from an informational perspective which in turn directly addressed global climate change through behavioral change. Through the attempt of a greenhouse gas inventory of one academic building, students, faculty, and staff became more aware of their impact on both the school's finances but more importantly on their contribution to global climate change. Student and faculty interest in recycling has increased and new conversations have started taking place. While the project had small impacts like the planting of two gardens, use of composting for organic trash, and reduced energy use the long term impacts from the new awareness will have considerable impact on the school's carbon footprint.

Commentary and Reflection

If you are attempting to start a sustainability or environmental program at a school that does not already have something established, it is going to be a hard road. In my and those I've work with experiences; it takes multiple years to get a program developed from scratch. You will need to convince the campus of why they should participate, how they will benefit, and most importantly who will do all the heavy lifting. At first it will be just you, the impassioned one, championing the projects but over time if you bring others in, delegate tasks, and collaborate you will have more support and most importantly a smaller work load to carry.

The Campus Ecology Fellowship provided the means and opportunity to pursue a project that I would have otherwise not been able to even attempt. It is the opportunity to both attempt something large and complex that was able to both fail and succeed that I have become better at organizing, informing,

and combating global climate change. There is no single event, person, or item that was more important than the entire experience. Because of this project, the campus administration is now considering how to incorporate sustainability into the curriculum and culture, where before it was absent. The new campus leaders are already determining the “how” rather than the “why”.

ENGAGEMENT AND SUPPORT

In this project, there were no “organizations” per se that were instrumental to the project but rather many members and groups of the Daytona Beach and Bethune-Cookman communities that provided support and guidance. Without engaging with community members, I would have continued to walk into brick walls of local politics and preferred channels of communication. Without engaging the campus community sooner and more fully, I undermined my own efforts.

Leaders and Supporters

- Anne Ferguson, Director, Chiles Academy, akfergus@volusia.k12.fl.us
 - As the Director of the Chiles Academy, she provided the location and support for the founding and creation of the Bonner Center Community Garden. The Chiles Academy also provided logistical support for the planning and hosting of the Daytona Beach Earth Day Festival.
- Omar and Camille Brown, Founders, Midtown EcoVillage, midtownecovillage@gmail.com
 - As the co-founders of Midtown EcoVillage, Omar and Camille were vital for involving the community surrounding Bethune-Cookman University. They also provided vital assistance in co-hosting the Daytona Beach Earth Day Festival.
- Jason Aufdenberg, Professor of Physics, Embry Riddle Aeronautical University, aufded93@erau.edu
 - Dr. Aufdenberg was highly active with a previous attempt at a community garden in Daytona Beach. He provided assistance in recruiting, fundraising, and designing the community garden.
- Michael Reiter, Director of Integrated Environmental Science, Associate Professor of Integrated Environmental Science, reitem@cookman.edu
 - Without Dr. Reiter’s help in applying to the Campus Ecology program and forwarding contacts for me to work with, this project would have not made any progress.
- Dean Montgomery, Vice President/CFO, Bethune-Cookman University, Deceased
 - Dean Montgomery was one of the most interested and engaged member of the Bethune-Cookman community for encouraging sustainability and wider environmental efforts. Unfortunately his passing in December of 2011 left a large gap in furthering the project.
- Herbert Thompson, Dean of School for Science, Engineering, and Mathematics, Bethune-Cookman University, thompsoh@cookman.edu
 - Dr. Thompson was a very helpful advocate for my projects within the Bethune-Cookman community. He was able to provide the support needed to install the garden beds and obtain new areas to plant gardens on campus. Dr. Thompson is also working to incorporate aspects of sustainability into new job positions on campus to further support integration of sustainability.
- David Martin, Solar Energy Consultant, BlueChip Energy, davidwmartin@cfl.rr.com
 - David worked with me to organize and present a solar PV project to BCU. We also tried, unsuccessfully, to apply to grants to support the project when internal funding was not

available. I now work with him to develop a solar energy lecture for the Introduction to Environmental Science course taught by Dr. Reiter.

Funding and Resources

Of the funding from the NWF, \$735.30 was used for on campus projects and to start the Daytona Beach Earth Day Festival's website. Of the purchases made, there were almost \$400 in donated items and work hours to help the NWF grant go further. To support the community garden project and the Earth Day event I had to search for outside funding and support. Community gardens require startup capital for equipment, seeds, soil amendments, and other items. I applied to several grant opportunities and received a \$2,000 grant from the Walmart Community Foundation. I also fundraised from community leaders and gathered over \$4,000 in donated funds, in-kind, or time.

Inside the campus, there was no financial support available for further projects. I was able to secure areas for the composter and flower beds through working with Dr. Thompson to override objections from the Facilities Department.

Education and Community Outreach

My most success was through community outreach, I was able to engage the Daytona Beach community more effectively than the Bethune-Cookman community. With the community garden alone I was able to lead once a week workshops or activities involving organic agriculture and renewable energy, with guest speakers from local businesses and the universities that drew around a dozen people. We also had local leaders, government officials, and news outlets visiting on a regular basis. I had more luck getting BCU students involved with the off campus projects than the one campus ones. We had at least six students volunteering per week from all three of the local universities per week.

<http://midtownecovillage.org/letting-their-community-garden-grow.html>

<http://www.news-journalonline.com/news/local/east-volusia/2012/04/23/daytona-earth-day-celebration-centered-around-community-garden.html>

<http://daytonatimes.com/2012/04/12/letting-their-community-garden-grow/>

National Wildlife Federation's Campus Ecology Program

The Campus Ecology program provided the initial funding, legitimacy, and networks to start these sustainable projects. The initial funds were vital to getting the gardens, compost, and energy conservation plans underway. Once those were started I was able to demonstrate how easy they are to plan, install, and maintain which helped convince the campus officials of their value. What helped even more was the ability to say that I am a Campus Ecology Fellow, which provided a level of authenticity and legitimacy which opened certain doors and allowed me to proceed with projects. Without the support of the NWF in name, it would have been much more difficult for me to create the community garden or convince Dr. Thompson to support my garden project. Lastly the networks created by the program not only helped inform projects but also provided a group of people to troubleshoot and commiserate with when projects did not go as planned or hit roadblocks. Without meeting the other members of the Campus Ecology program and being able to work with them through problems, this entire project would have been much more challenging.

The following NWF resources were consulted throughout this project:

- Consultation with staff

- ❑ Online case study database
- ❑ Web conferences
- ❑ E-newsletter (ClimateEdu)
- ❑ Fellowships
- ❑ Reports:
 - ❑ *Higher Education in a Warming World*
 - ❑ *Guide to Climate Action Planning*
 - ❑ *Generation E: Students Leading for a Sustainable, Clean Energy Future*
 - ❑ *Student Sustainability Educators: A Guide to Creating and Maintaining an Eco-Rep Program on Your Campus*
- ❑ Campus Ecology Blog
- ❑ *Chill Out: Campus Solutions to Global Warming* annual national competition and broadcast

The following Fellowship resources have been useful:

- ❑ Leadership Development Conference Calls

The conference calls were useful for updates on progress with other Campus Ecology members and provided a conversational piece for after the call when following up with the other members on their projects. It kept us in contact and engendered conversation and activism.
- ❑ NWF Name Recognition

There is no way to stress how vital this was to the few successes of this project. Being able to say that the NWF has faith in myself to attempt these projects made it easier for others to trust me and provide support.
- ❑ Participation in NWF Annual Meeting

This event last year helped create many new friendships and also network with other Campus Ecology members in Florida with whom I continue to work closely with today. By meeting our peers in person, we were able to do what no phone conference could do, become friends and collaborators. Our discussions with the NWF on various projects not only helped the NWF but also ourselves by creating ideas that we could implement back home. Currently Chris Castro and I are working with the FWF to create a similar program the NWF has done with the young leader program.

CONTACT INFORMATION

Contacts

At the end of this project, there is no on campus team or committee. The best point person for contact would be Michael Reiter, Director of Integrated Environmental Science, Associate Professor of Integrated Environmental Science, reiterm@cookman.edu, (386) 481-2695. He is best aware of what projects are in play and what developments the campus will be making over the next few years.

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MORE ABOUT YOUR SCHOOL

Campus Sustainability History

The campus does not have a sustainability office or program as of now but is in the process of creating one. Prior to this project, there was an Environmental Committee of interested professors, staff, and students. This group eventually fell apart due to lack of campus support for initiatives and attempts at restoring it have not been successful. Co-currently to this project was worked on by the student group Students Interested In Free Enterprise (SIFE). They attempted to encourage the campus to adopt recycling and energy conservation but encountered many of the same issues I did, uninterested students and a campus administration with other goals. The student government in conjunction with a few student leaders who were part of SIFE attempted to host an Earth Day event but ultimately the event was cancelled due to lack of support from campus and the competition with the Earth Day event I was helping organize at the community garden.