# Sustainability at the University at Buffalo: Current Policies and Recommendations for the Future

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## I. Introduction

Sustainability is becoming increasingly important. The Earth's resources are limited and the human population is continually growing. Because of the concentration of people and resource use, it is important for universities to be sustainable. Sustainability programs incorporate a wide variety of policies, ranging from regulation on food and recycling to regulation on transportation and building development. The University at Buffalo has been successful in implementing sustainability initiatives and the policies the University has implemented have effectively reduced energy consumption, reduced pollutants and emissions, and saved money. One thing UB can work on is creating a fundamental sense of sustainability in its students, the faculty, and the community. This will encourage sustainable behavior, which will in turn increase future sustainable behavior because there is a causal impact of past behavior on later decisions.[1]

This paper first clarifies what sustainability means. Second, it explains why it is important for universities to have sustainability initiatives. Third, it discusses the University at Buffalo's sustainability initiatives. Finally, it sets forth ways the University can better fulfill its goals of becoming a more sustainable school.

## II. Sustainability is Difficult to Define but is of Great Importance.

### A. Sustainability is an elusive concept.

The word "sustainability" (now often referred to as "sustainable development") has been linked to many different concepts and has been given various definitions. The word has evolved. While some define sustainability as "being green", sustainability encompasses far more than that. While being green is something that people resonate with (which is why many companies and

[1] Robert S. Wyer, *The Cognitive Impact of Past Behavior: Influences on Beliefs, Attitudes, and Future Behavioral Decisions*, ATTITUDES AND SOCIAL COGNITIONS, (Dec. 1999) (available at http://www.heplerlabs.com/SAL/publications/05.pdf).

universities call their initiatives "green"), it involves only a part of what it is to be sustainable. For instance, something might be considered "green" if it saves energy; however, if that same thing harms people, or harms the future environment in some way, it is not sustainable, because ultimately the goal of sustainability is a thriving endurance.

"Sustainable development" can seem like a contradiction because some people wrongly equate "sustainable" with "cutting back" and "development" with "growing", or may associate "sustainable" with "maintaining a dynamic equilibrium" and "development" with "maximalization of benefits with the minimalization of investment".[2] However, "sustainable development" is not a contradiction, since development is sometimes necessary to create buildings that are capable of being continued with minimal long-term effects on the environment.

So what does sustainability mean? Since legislators have used the term, it seems appropriate to look to a legal source to define it. However, Black's Law Dictionary only defines "sustain", which means "to support or maintain, esp. over a long period".[3] Lending some support to the problem of a lack of a legal definition of sustainability, twenty-four years ago, the World Commission on Environment and Development described "sustainable development" (i.e., sustainability) as "meeting the needs of the present, without compromising the ability of future generations to meet their own needs".[4] This definition is widely accepted along with the idea that sustainability has three fundamental components: social equity, environmental protection, and economic growth.[5]

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[2] Leonardo Boff, *(Un)sustainable Development*, NATIONAL CATHOLIC REPORTER (Apr. 2003) (available at http://www.nationalcatholicreporter.org/globalpers/gp043003.htm).
[3] BLACK'S LAW DICTIONARY 1584 (9th ed. 2009).
[4] G.A. Res. 42/187, ¶ 2, U.N. DOC. A/RES/42/187 (Dec. 11, 1987).
[5] *Sustainable Dev.*, ENV'T LITERACY COUNCIL, http://www.enviroliteracy.org/article.php/269.php (last visited Nov. 18, 2011).

The trio of social equity, environmental protection, and economic growth is sometimes referred to as "the three Ps": people, planet and profit.[6] The first third of the trio, "people", means one of the main components of sustainability is the goal of empowering people to their best potential through health and equity, encouraging social progress, and maintaining or achieving a good standard of living. Improving the quality of life requires different initiatives depending on where one is located in the world. Therefore, sustainability requires commitment globally as well as individually.

The second third of the trio, "planet", means one of the main components of sustainability is realizing that we have finite resources, and doing what we need to do to protect and preserve those resources for future generations. Along with protecting resources, the "planet" portion represents limiting our pollution and actively reducing green house gases.

The last third of the sustainability trio, "profit", means that one of the goals is economic growth and efficiency.[7] This is often accomplished through the building of energy efficient buildings.

Ryan McPherson, the Chief Sustainability Officer at the University at Buffalo also uses this definition and believes that sustainability is all about balance and commitment to being carbon neutral.[8] "Sustainability is not about freezing and shivering in the dark, trying to save on energy. Saving energy does not mean giving up comfort or health."[9] In fact, social wellbeing is one of the essential elements of sustainability under "people".

Sustainability is forward looking, not backward stepping. One of the aspects of sustainability that's interesting is that it takes on many forms. Sustainability is an idea and a way of thinking,

[6] Interview with Ryan McPherson, Chief Sustainability Officer, Univ. at Buffalo, in Buffalo N.Y. (Oct. 26, 2011).
[7] *Sustainable Dev.*, ENV'T LITERACY COUNCIL, http://www.enviroliteracy.org/article.php/269.php (last visited Nov. 18, 2011).
[8] Interview with Ryan McPherson, Chief Sustainability Officer, Univ. at Buffalo, in Buffalo N.Y. (Oct. 26, 2011).
[9] *Id*.

but it is also involved in actions and is a way of life, ranging from building practices to other mundane everyday activities.

**B. Sustainable development is extremely important.**

Sustainability is important because we have limited resources on this planet. The Earth is not growing, but the human population is. One does not need to review the numerous studies out there to know that humans have a large impact on this planet. Whether it is in the form of resource depletion, pollution, or climate change, humans have a serious, negative effect on Earth. However, sustainability is not simply about surviving on this planet longer, but thriving of humans, of animals, and of the earth.

Sustainable development has numerous benefits that give it its importance. For one, sustainability preserves resources (e.g., sustainable buildings consume less energy and water). This is arguably the most important benefit of sustainability. With our rapidly growing population, and with the vast amount of people in poverty that already exist, it is vital to have a plan that will make way for these new lives, while increasing the standard of living, all without stressing the planet too much. Because of this, sustainability is not merely an option; it is the only way to survive.

Sustainability also decreases pollution (e.g., air-pollution caused by greenhouse gases is reduced if energy consumption is reduced), and can improve comfort and indoor air quality.

Sustainability saves money. When viewing the economic life of a building as opposed to its "first cost", it is clear that sustainable buildings are by far the most cost effective buildings.[10] In

[10] *Colleges and Universities- Transitioning to a More Sustainable Campus*, THE SUSTAINABLE CAMPUS, http://www.sustainablecampus.org/universities.html (last visited Nov. 18, 2011).

fact, even when evaluating the "first cost", it turns out that sustainable buildings actually have little to no effect on the cost of a new building.[11]

Sustainable development has been shown to have other immediate benefits on people. For instance, buildings that incorporate the sustainable practice of harvesting daylight have been shown to increase student performance by over 20% in some of the cases studied, all the while, greatly reducing energy consumption. *Id.* On top of doing it's obvious job of protecting our limited resources from overuse, sustainability provides business opportunities, new jobs and new technologies.

Cities across the world are encouraging and developing sustainability initiatives. Some common dimensions cities have enforced or encouraged sustainability policies include transportation, housing, land use, energy, emergency preparedness, infrastructure, communications and innovation.[12]

Part of the later move to sustainable development was influenced by the United Nations Decade of Education for Sustainable Development ("UNDESD") (2005-2014), which was established in December 2002.[13] Some of the goals of the UNDESD including taking into account education in sustainable development plans, creating public awareness of the importance of sustainable development and having regular and substantial coverage of sustainable development issues in the media.[14]

**C. College campuses have a duty to incorporate sustainability initiatives.**

Higher education in the United States, as well as in other countries, has started moving

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[11] *Id*.

[12] . Lynn Scarlett, *Introduction: Cities and Sustainability-Ecology, Economy, and Community*, 11 SUSTAINABLE DEV. L. & POL'Y 2 (2010).

[13] *Colleges and Universities- Transitioning to a More Sustainable Campus*, THE SUSTAINABLE CAMPUS, http://www.sustainablecampus.org/universities.html (last visited Nov. 18, 2011).

[14] *The DESD at a Glance*, UNITED NATIONS DECADE OF EDUCATION FOR SUSTAINABLE DEVELOPMENT, http://unesdoc.unesco.org/images/0014/001416/141629e.pdf (last visited Nov. 18, 2011).

toward sustainable development and has incorporated various sustainability initiatives into its policies. In fact, today it is considered "hard" to "find a professional association related to building design, construction, maintenance, and operation, as well as community planning and development, which does not have some initiative related to sustainability."[15]

Part of the reason for this shift in New York is that in June 2001, New York Governor Pataki issued Executive Order No. 111 which required State agencies to follow guidelines for the construction of green buildings and achieve a 20% improvement over Energy Code for all new construction.[16]

Universities employ sustainability initiatives in various ways, but usually by including having some sort of environmental statement, guidelines or a general plan. It is important for universities to incorporate sustainability initiatives into their plans for two main reasons: 1) universities have very large populations and thus contribute substantially to resource degradation and pollution; and 2) universities serve as pilots for the community.

The first reason it is important for universities to incorporate sustainability initiatives is universities often have very large populations, similar to that of towns. This large group of people creates a greater demand for resources that leads to a higher amount of pollution and decreased resources. For instance, in the year 2000 the University at Buffalo used as much energy as the annual consumption for 50,000 households.[17] Furthermore, Campus energy consumption is responsible for 500 tons of acid rain-producing sulfur dioxide, 700 tons of acid rain and smog-producing nitrogen oxides and 200,000 tons of global warming

[15] *Colleges and Universities- Transitioning to a More Sustainable Campus*, THE SUSTAINABLE CAMPUS, http://www.sustainablecampus.org/universities.html (last visited Nov. 18, 2011).

[16] Exec. Order 111, Green and Clean State Buildings and Vehicles (June 10, 2011) (available at http://www.nyserda.org/programs/exorder111orig.asp).

[17] *UB Energy Consumption*, UBGREEN, http://www.ubgreenoffice.com/?p=8 (last visited Nov. 18, 2011).

enhancing carbon dioxide.[18] Universities have a greater duty to incorporate sustainable development due to their concentrated, high populations and consequently their high contribution to pollution.

Second, it is important for universities to incorporate sustainability initiatives as leaders of education and initiators of progress. Universities make a great contribution to society and are often looked to as change agents. Many of the great movements in this country initially took place at universities. Universities have a sort of societal responsibility as a pilot for the community, and should incorporate healthy practices so as to be a model for individuals as well as other businesses.

Other reasons universities need to have sustainability initiatives are that a substantial amount of undergraduates consider sustainability an important factor in choosing a college, and it is also important to teach leadership and accountability in preparing students for the world in which they live.[19]

**D. A sustainable campus incorporates various components to help achieve its goals.**

When adopting sustainability initiatives, it is important that every aspect of the university community is involved. Four components include: 1) the administration; 2) the people (students and faculty); 3) the research; and 4) the local community.[20] It is vital that every part of the university share the initiatives and the same goals so that sustainability can be achieved. Furthermore, a committee or an office of sustainability will be needed to discuss the information and goals, and develop plans.

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[18] *Id*.
[19] Interview with Ryan McPherson, Chief Sustainability Officer, Univ. at Buffalo, in Buffalo N.Y. (Oct. 26, 2011).
[20] *Colleges and Universities- Transitioning to a More Sustainable Campus*, THE SUSTAINABLE CAMPUS, http://www.sustainablecampus.org/universities.html (last visited Nov. 18, 2011).

The administration is a vital aspect in fulfilling sustainability goals. The administration affects the business decisions on all levels, ranging from the deciding the design of new buildings to "maintenance of those buildings, other landscaping, recycling at various levels, waste management, custodial services, energy management, transportation, food service and dining operations, and residential operations."[21]

The faculty and students play a very important role in fulfilling sustainability goals as well. Since sustainability requires efforts by everyone, faculty and students who know and live these practices will eventually become leaders and educators, teaching others their knowledge and lifestyles. A university who wants to have effective sustainability initiatives will incorporate courses and encourage environmental literacy to its students, so that the students will be able to know and live sustainable lifestyles.

Another aspect of the fulfillment of sustainability goals by universities is encouraging research on sustainable practices. Universities should encourage their faculty as well as their students to research areas in sustainability. Research could include a range of topics, from "large scale composting, procurement practices, production methods, alternative energy sources, and any number of building design, construction, operations, and maintenance practices.[22]

### E. The Governments Role In Promoting Sustainable Development

On the federal level, acts such as the Energy Policy Act of 2005 and the Energy Independence and Security Act of 2007, require energy efficiency and sustainable design for

[21] *Id.*
[22] *Id.*

new Federal buildings.[23] Since the early 1990s there have also been many Executive Orders and agency-specific rules promoting sustainable development. There are various bills in support for energy efficiency and sustainable development.

There are many sustainable development laws at the state and local level as well. The problem is that many laws do not require sustainable development, but merely encourage it, and furthermore the laws mainly apply to public, not private buildings.[24]

## III. UBs Sustainability Initiatives

"UB's sustainability policy is encapsulated in the commitment to the American College and University President's Climate Commitment (ACUPCC) and the guiding principal in UB's master plan that is focus upon the environment".[25]Its sustainability plan is its climate action plan and its guide to becoming climate neutral by 2030.[26]

Factors motivating UB's adoption of environmental policies (though not all are binding) include the New York State Solid Management Act of 1988; a 1998 Trash Stream Report; Executive Order 142, "Establishing New Waste Reduction and Recycling Initiatives for State Agencies"; environmental stewardship policies adopted in 1993; a Recycling Policy; the Talloires Declaration, encouraging "all universities to engage in education, research, policy formation, and information exchange on population, environment, and development to move toward global sustainability"; and the American Geophysical Union's (AGU) official policy

[23] *Green Building*, THE UNITED STATES ENV'T PROT. AGENCY, http://www.epa.gov/greenbuilding/pubs/faqs.htm (last visited Nov. 18, 2011).
[24] *Id.*
[25] *Univ. at Buffalo, SUNY Campus Report Card 2011*,THE COLLEGE SUSTAINABILITY REPORT CARD, http://www.greenreportcard.org/report-card-2011/schools/university-at-buffalosuny/surveys/campus-survey (last visited Nov. 18, 2011).
[26] *Id.*

statement that there was a 'compelling basis for legitimate public concern' about human-induced climatic change".[27]

The University at Buffalo has done a great job of incorporating sustainability initiatives into it. UB has fifteen different policies focused specifically on physical operations, and has signed on seven voluntary EPA programs that incorporate sustainability practices into the UB culture. UB has agreed to: 1) establish a policy that all new campus construction will be built to at least the U.S. Green Building Council's LEED Silver standard or equivalent; 2) adopt an energy-efficient appliance purchasing policy requiring purchase of ENERGY STAR certified products in all areas for which such ratings exist; 3) establish a policy to offset all greenhouse gas emissions generated by air travel paid for by the institution; 4) encourage use of and provide access to public transportation for all faculty, staff, students and visitors at the institution; 5) begin purchasing or producing at least 15 percent of the institution's electricity consumption from renewable source; 6) establish a policy or a committee that supports climate and sustainability shareholder proposals at companies where the institution's endowment is invested; and 7) participate in the waste minimization component of the national RecycleMania competition, and adopt three or more associated measures to reduce waste.[28]

UBs accomplishments are certainly something to be proud of. UB has saved over $9 million and $65 million in cumulative cost savings.[29] UBs sustainability policies mainly pertain to

[27] *Id.*
[28] *Univ. at Buffalo Climate Action Plan*, THE UNIV. AT BUFFALO ENV'T STEWARDSHIP COMM.,http://www.buffalo.edu/content/www/ub2020/transforming_operations/transforming_initiatives/environmental_stewardship_committee/_jcr_content/par/download/file.res/UB_Climate_Action_Plan.pdf (last visited Nov. 18, 2011).
[29] Blair Boon, *The UB Energy Message*, UBTODAY, http://www.buffalo.edu/UBT/UBT-archives/32_ubtss06/features/energy.html (last visited Nov. 18, 2011).

energy, environmentally friendly products procurement, recycling, food, building design, and teaching.

**A. UB has various energy policies.**

UB aims to achieve carbon neutrality by 2030 and plans to reach this goal through reducing building energy consumption through policies on temperature and the installation of efficiency technologies.[30] According to the UB2020 plan, UB is preparing to expand, and since working toward carbon neutrality is its main goal, UB must reduce its emissions at a greater level that it is now. UB is making its way toward this goal by using solar panels, and having 20 percent of electricity purchased come from renewable sources.[31] UB essentially has four energy policies- heating, air conditioning, electricity, and sustainable energy.

1. Heating Policy

UBs heating policy requires that the University's facilities be heated up to 68 degrees during normal occupied hours and during off-hours, temperatures can drop to 55 degrees. Furthermore, UBs facilities must utilize the most energy efficient means of supplying heat for approved off-hours heating requests.[32]

2. Air Conditioning Policy

UBs air conditioning policy requires that UB air conditioned facilities be cooled to 76 degrees during normal occupied hours (during off-hours, temperatures may rise above this level). (*See* ubgreenoffice.com). The policy also calls for minimizing "reheats" which is a very expensive process in which heating coils are used to heat up air that is too cold for distribution.[33]

[30] *Climate Neutrality*, UB 2020, http://www.buffalo.edu/ub2020/building_ub/planning_at_ub/climate_neutrality.html (last visited Nov. 18, 2011).
[31] *UB Env't Policies*, UBGREEN, http://www.ubgreenoffice.com/?p=8 (last visited Nov. 18, 2011).
[32] *See* ubgreenoffice.com.
[33] *Id.*

3. Electricity Policy

UBs electricity policy requires UB to "make sure rate structures provide appropriate incentives for conservation and to explore electricity purchasing agreements which include, as a value-added component, energy efficiency services" and encourages exploration of options for purchasing energy from environmentally friendly renewable energy sources.[34]

4. Sustainable Energy Policy

UBs sustainable energy policy essentially brings all the energy policies together. This policy overall requires UB to be fully committed to building green facilities, minimize harmful emissions, eliminate its reliance on coal in the MacKay Power Plant, employ renewable energy technologies, and to reassess campus transportation needs to reduce energy use and emissions, and operate campus buses and campus fleet vehicles on natural gas or other clean alternative fuel. (*See* ubgreenoffice.com).

**B. UB has an environmentally sound products procurement policy.**

UB seeks to utilize the fullest extent possible, 'environmentally friendly' products which are durable, made of recycled materials and can be recycled, nontoxic, highly energy efficient, Durable, as opposed to the single-use or disposable items, made in a sustainable manner by sustainable companies, shipped with minimal packaging, and if possible which are produced locally. (*See* ubgreenoffice.com). Furthermore, UB controls its campus mail in a sustainable manner, encouraging email communication and discouraging the use of sealable envelopes, and

[34] *Id.*

also encourages environmentally responsible practices when it comes to the campus newspaper.[35]

### C. UB incorporates recycling and sustainable food policies.

UB encourages recycling and currently recycles "over 30% of the University's solid waste stream, with a stated goal of 50%."[36] Around 20% of UBs overall food budget is spent on local items.[37] UB also buys organic produce and dairy products and much of the fish purchased for UB is sustainably harvested.[38] Food scraps are composted at every meal and the coffee is fair trade.[39]

### D. UB has sustainable building design policies.

Because buildings consume so much energy, electricity, and resources, it is vital that sustainability initiatives involve building design. Sustainable building benefits include lower operating costs, reduced energy and environmental impacts, improved health and comfort of people in the building, and possibly pride from any national recognition for great designs. Some concepts incorporated in sustainable building include building small and building in a location to minimize transportation costs, using renewable energy, conserving water, creating a healthy indoor environment.

UB started developing a campus "green building" design policy to become more energy efficient and to incorporate environmental ideas into the design of new campus buildings and

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[35] *Id.*
[36] *Id.*
[37] *Univ. at Buffalo, SUNY Campus Report Card 2011*,THE COLLEGE SUSTAINABILITY REPORT CARD, http://www.greenreportcard.org/report-card-2011/schools/university-at-buffalosuny/surveys/campus-survey (last visited Nov. 18, 2011).
[38] *Id*.
[39] *Id.*

major renovation projects in 1998.[40] In May 2000, UB's Sustainable Energy Policy was approved in which UB committed to strengthening its commitment to the principles of environmentally sustainable green building design for all new construction and major renovations.[41] Now, as a result of the Governor's Executive Order No. 111, UB must be "fully committed to applying green design principles to all new construction and major renovation."[42]

UB has already engaged in a comprehensive $17+ million "retrofit" that has addressed "heat recovery, upgrading lighting systems, the installation of high efficiency motors and drives, as well as controls and energy management systems to cut energy use while maintaining if not enhancing the quality of its buildings and facilities."[43]

Two of UBs buildings have been certified by the U.S. Green Building Council's Leadership in Energy and Environmental Design (i.e., they have been LEED certified). These buildings are the Buffalo Life Sciences Complex and Creekside Village. Creekside Village was Western New York's first LEED certified building. Being LEED certified means that the buildings have met voluntary, consensus-based national standards for evaluating high - performance, sustainable buildings.[44]

**E. UB teaches its students and the community about sustainability.**

At UB there are various ways sustainable practices are being taught to the students and the community. First, a couple hundred courses at UB have a sustainability angle to them or are fully about sustainability.[45] Second, UB has websites such as UBGREEN to teach students, faculty,

[40] *See* ubgreenoffice.com
[41] *Id.*
[42] *Id.*
[43] *Id.*
[44] *UB Publishes "Green" Design Guidelines, Influencing its Own Construction Projects and Others in New York State*, NEWSCENTER, (Dec. 15, 2004) (available at http://www.buffalo.edu/news/7041?print=1).
[45] Interview with Ryan McPherson, Chief Sustainability Officer, Univ. at Buffalo, in Buffalo N.Y. (Oct. 26, 2011).

and the community about sustainability and UBs initiatives. Third, the UB Green Office has a small environmental library which contains information on green building design. Fourth, UB has an Environmental Stewardship Committee and a new Chief Sustainability Officer all not only to help implement sustainability initiatives, but to teach others about sustainability. Fifth, the Faculty Student Association trains all new and existing employees to participate in environmentally sound practices, publicizes its environmental policies in all facilities. And sixth, UB teaches the public and serves the Western New York community as a leader in sustainable development through outreach in the form of highly successful conferences on green building design.

## IV. How UB Compares to Other Campuses

Sustainable development "competition" across campuses is different than other endeavors in that the "competition" is very friendly since everyone is trying to attack the same challenge and sustainable requires efforts from everyone. Sustainability is a point of pride for universities though, and websites like "greenreportcard.org" rate campuses on their sustainability policies and efforts. Greenreportcard.org rates schools on administration, climate change and energy, food and recycling, green building, student involvement, transportation, endowment transparency, investment priorities, and shareholder agreement.

UB received a "B+" rating for 2011 on greenreportcard.org, which went up from last year. While UB received an "A" for administration, climate change and energy, and food and recycling, it received a "B" for green building, student involvement, transportation, and investment priorities, and received a "C" for endowment transparency. UB

Because UB is a state school, it does not have as many resources as some of its competitors on greenreportcard.org. Even still, UB has a goal of reaching climate neutrality by 2030. Cornell,

a university with many more resources is looking at 2050.[46] This speaks volumes about UBs commitment to being sustainable. Even with its limited amount of resources, UB can still take some ideas from other universities. Aside from schools like Harvard, Yale, and Middlebury, there are universities with less money that serve as great models for their sustainability initiatives. McPherson believes that the University of New Hampshire ("UNH") has some great ideas that UB can employ.[47]

For instance, UNH makes a list of asset allocation, external managers, and mutual funds available to the public.[48] UNH also runs a free shuttle system on and off campus which links regional bus and train services, has bike-sharing, car-sharing, and ride-matching programs, is currently transitioning to the use of B20 low-sulfur diesel, and has a compressed natural gas fueling station on campus.[49]

## V. What More UB Can Do- Encouraging A Fundamental Rethinking of Sustainability

It is difficult to measure the effectiveness of sustainability initiatives because for one, much of the goal is endurance of humans and resources. It is difficult to measure this type of endurance because it takes too much time and there would be no control. However, UB has effectively met some policy goals. This is evidenced by a great saving of money on energy, and reduced emissions. UB is always working on ways to make buildings more efficient and ways to save energy, and can easily implement policies from other universities, but UB should focus on creating a campus and community-wide subconscious that is focused on sustainability.

[46] *Cornell Sustainable Campus*, CORNELL UNIV., http://www.sustainablecampus.cornell.edu/climate/ (last visited Dec. 11, 2011).
[47] Interview with Ryan McPherson, Chief Sustainability Officer, Univ. at Buffalo, in Buffalo N.Y. (Oct. 26, 2011).
[48] *See* Greenreportcard.org.
[49] *Id.*

The main thing UB should focus on is not merely education and awareness by adding a few classes on sustainability, but incorporate practices that lead to a "fundamental rethinking of how institutions higher education educate students, conduct research, interact with local communities and ecosystems, operate their campuses, and provide a model for other social institutions".[50] This fundamental rethinking should be a priority in UBs environmental policies because encouraging sustainable behavior will increase future sustainable behavior because there is a causal impact of past behavior on later decisions.[51] Furthermore, not understanding the significance of sustainable development is one of the great barriers to effective sustainable development. This is because sustainability requires individual and collective efforts. There needs to be an organizational demand for sustainable development such that it is one of the highest priorities.

One thing UB can continue to do to create this subconscious is encourage the use of sustainable visuals such as solar panels. "Sustainable visuals like solar panels invite students, faculty, and staff to learn more about sustainability and encourage people to gain a greater understanding of how they can reduce their own carbon footprints."[52] Sustainable visuals first create curiosity, and then a sense of pride in knowing the student's college is doing something good for the environment, for the economy, and for the student. Another example of UBs use of substainable visuals are the new rain gardens and porous asphalt pavements at Harriman Quad

[50] Michael P. Shriberg, *Sustainability in U.S. Higher Education,* Dissertation, p. 16 (2002) http://www.aashe.org/files/resources/student-research/2009/shriberg.pdf.

[51] Robert S. Wyer, *The Cognitive Impact of Past Behavior: Influences on Beliefs, Attitudes, and Future Behavioral Decisions*, ATTITUDES AND SOCIAL COGNITIONS, (Dec. 1999) (available at http://www.heplerlabs.com/SAL/publications/05.pdf).

[52] Charles Alcorn et al., *Reducing Dickinson's Carbon Footprint*, Dickinson College, June 8, 2011, available at http://www.aashe.org/files/resources/student-research/2009/reducingdickinsonscarbonfootprint.pdf.

that keep rain water out of storm-sewers and reduce the need for salting walkways. [53] in addition, more than a hundred new trees were planted at Harriman Quad.[54]

Another thing UB can do to help start a fundamental rethinking about sustainability is to educate students and the community on it in a positive, instead of a blaming, intimidating way. It is important to do this because students should not have feelings of guilt or judgment associated with sustainability, but positive feelings of ability and positive responsibility. For instance, when encouraging students to do more, UB should talk about what good students do, instead of what they do not do. Creating a sense of pride in the students will motivate them in a healthy way.

A third thing UB can do is incorporate more sustainability themed degrees, encourage environmental literacy, and encourage sustainable research. In a recently conducted survey, 24% of students at UB did not view climate change as a large problem.[55] Myths and misconceptions about environmental issues and sustainability inhibit sustainable goals since sustainability requires cooperation on all levels. It is important that UB educate its students about sustainability and encourage further research on it. One way UB can do this is through training workshops, meetings, guest speakers and seminars available to the faculty, students, and community.

Another thing UB should do to better their sustainability initiatives is to change much of what is encouraged, and make it so it is required. For instance, it should be required in a formal green purchasing policy that the purchase of lighting and office supplies be from organizations that are sustainable, and whose products are green. Furthermore, as it applies to creating a

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[53] *Harriman Quad Restoration*, UB 2020, http://www.buffalo.edu/ub2020/building_ub/capital_projects/south_campus/Harriman_Quad_Restoration.html (last visited Nov. 18, 2011).
[54] *Id.*

[55] *Report Back, University of Buffalo Sustainability Forum*, AASHE, http://www.aashe.org/node/3009 (last visited Nov. 18, 2011).

campus and community-wide sustainability oriented subconscious, it should be required that student representatives exist to discuss and relay environmental issues to other students.

More ways UB can encourage a sustainability oriented subconscious is by creating more committees, having energy reducing competitions among departments and among students, creating ad campaigns.

While UB does not have an endless pocket for funds pertaining to sustainability initiatives, it is one of the main goals of sustainable development to *decrease* economic costs. Many people are unaware of the amount of money spent on energy, water, and the like. Education on the real cost of operational activities would surely help push UBs sustainability initiatives forward. Furthermore, if UB needed to, it could help with their initiatives by incorporating a small "green fee" for all students, which would not cost the University anything, and which students would probably not paying (so long as it would be under $10).

## VI. Conclusion

The University at Buffalo has been successful in implementing sustainability initiatives and the policies the University has implemented have effectively reduced energy consumption, reduced pollutants and emissions, and saved money. One thing UB can work on is creating a fundamental sense of sustainability in its students, the faculty, and the community. This is important to do to further the goals of sustainability, since sustainability requires individual as well as community efforts. This sustainability ethos will hopefully carry out to individual's lives after they leave UB. Some ways UB can create this fundamental rethinking include using more sustainable visuals, such as solar panels, educating students on sustainability, giving presentations to the community, and creating more environmental literacy.