

*A University Communication
Network on Sustainability &
Climate Policy*

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The University of Michigan

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1. Introduction

Many Universities across the country have established sustainability groups in response to the growing concern on global warming and climate change. The most influential universities have established sustainability councils and departments that are fully funded and supported by their respective school. However, sustainability is a local concern while climate change and policy is a global concern. Finding the correct recipe to establish a network of schools to transform sustainability into climate change needs to be established in order to reverse the damage humans are causing to the environment.

The purpose of this report is to conduct a comparative study on sustainability and climate policy in various college towns. This trade study will help to discover the strengths and weaknesses of a diverse group of universities in order to establish a communication network on sustainability and climate policy. In turn, an action plan on keeping students actively involved and motivated on this important issue will be established in order to reverse the effects of climate change and to implement new policies on a local and global scale.

2. A University Trade Study

2.1 The University of Michigan

The University of Michigan is located in Ann Arbor, Michigan; 50 miles west of Detroit. Michigan is the number one funded public research institute in the world with \$1.24 billion spent in 2011. Beyond the laboratory, "The U" has quenched their students' thirst for knowledge inside and outside of the classroom, especially in the field of sustainability. More than 640 courses are offered to students that contain content on sustainability. However, the problem cannot be solved with only engineering and the sciences and so the curriculum reaches out to concentrations in English, business, psychology, nursing and more. Weaved into the education are 670 dedicated faculty members that are educated on sustainability reaching from undergraduate to graduate level courses (Coleman).

Arguably the most impressive aspect to providing dedication into sustainability and climate policy may come from the three main administrative departments with full time university personal that help oversee the operations, education, and research of sustainability on campus. Established in the 1990's, Planet Blue is the gem of the university and helps develop the Sustainability Executive Council, Special Council for Sustainability, and the Sustainability Initiative Staffing. The purpose of Planet Blue is to reduce emission's output by 30%, reduce

greenhouse gas emissions by 25%, and increase waste prevention by 40% before the year 2025. These tangible goals will result into eco-friendly transportation and healthy environments with initial costs that will reduce financial spending in the future (Haysbert).

The most recent notable change Planet Blue has provided to the public, are the seven new diesel-electric hybrid busses that arrived on campus in January 2012. These new busses use a roof-mounted battery system to supplement their diesel engines, allowing for better fuel mileage and lower emissions. The new fleet of busses will be 30% more environmentally friendly than a conventional bus and by the end of 2012, one in six busses on campus will be a hybrid. In addition, Michigan has 742 university owned vehicles that run on E-85, bio-diesel, electricity, or hybrid technology. These transportation services comprise 16% of all renewable energy sources at U-M (Broekhuizen).

2.1.1 The Sustainability Executive Council

The Sustainability Executive Council at U-M is chaired by the president, Mary Sue Coleman. This council allows for high-ranking administrators such as the Vice President of Research, Vice President for Student Affairs, and the Vice President for Development to make executive decisions that will impact the university on sustainability issues. The council was established in 2009 to oversee and make critical decisions established by the Special Council to the President for Sustainability and the Sustainability Initiative Staffing (Planet Blue).

2.1.2 The Special Council to the President for Sustainability

Also established in 2009, was the Special Council to the President for Sustainability. This department is chaired by Professor Don Scavia of the School of Natural Resources and Civil & Environmental Engineering. Professor Scavia is the primary point person on sustainability issues occurring on campus. He advises the Sustainability Executive Council and reports directly to President Coleman. The council is made up of senior leaders and faculty members from the University of Michigan (Planet Blue).

The purpose of this council is to coordinate existing efforts by students, faculty, and staff across the entire campus on education, research, and operations for maximum impact and inspiring new initiatives. The Special Council to the President for Sustainability is tasked with reviewing proposals, setting goals, and reviewing funding requests all while ensuring that sustainability receives the highest priority at the highest level (Planet Blue).

2.1.3 The Office of Campus Sustainability

In 2009 the Office of Campus Sustainability (OCS) was established in order to organize the operations regarding sustainability issues on campus. Chaired by Terry Alexander, this department is filled with full-time staff members dedicated to improving university energy, recycling, and eco-friendly buildings (Planet Blue).

Each year, the OCS configures an annual report that outlines the accomplishments and developments at the University of Michigan during each Fiscal Year. This department is constantly developing new avenues on ways to save energy, one of which saves the university \$4 million each year by investing in building upgrades that reduce energy consumption and waste. The OCS is also the provider of many education and outreach activities around campus. They plan the annual “EarthFest: Party for the Planet” which is designed to educate and motivate students on sustainability challenges that face the University of Michigan. The “E-Waste Recycling” program allows the community and general public to properly recycle electronic waste. Finally, the Office of Campus Sustainability provides classes that explore current sustainability issues on the campus in order to form present day solutions (Donowan).

University of Michigan Waste Disposal

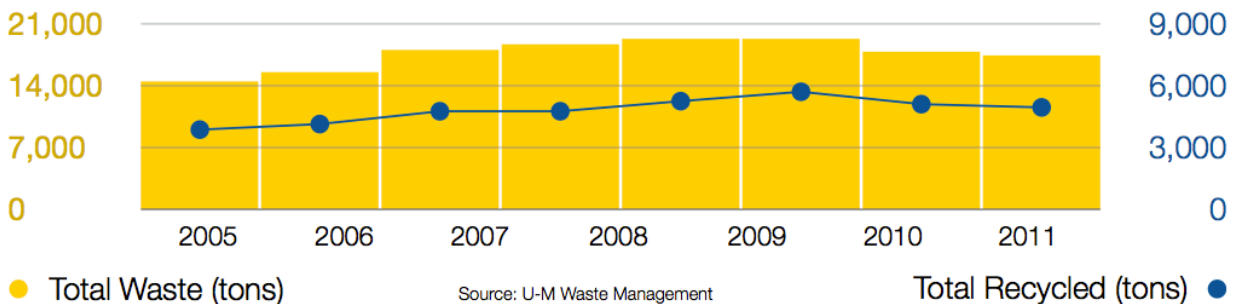


Figure 1: Waste disposal in the 2011 Fiscal Year according to the “Campus Sustainability Integrated Assessment” developed by the Office of Campus Sustainability.

The Office of Campus Sustainability collaborates with 12 sustainability partners in order to enhance the campus environment at the University of Michigan. These partners are continuously growing and expanding with ranges from student and campus organizations to conference organizations such as “Big 10 Friends Sustainability Group” (Planet Blue).

2.1.4 The Big Ten & Friends Environmental Stewards

Formed in 2009, the ‘Big Ten & Friends Environmental Stewards’ was created to plan for long-term issues on environmental stewardship. This group allows representatives from all 12 Big Ten Conference schools to collaborate on initiatives and opportunities to solve common environmental challenges across the region.

The group was created during an economic crisis where the value of the dollar seemed more pertinent than the number printed upon it. Economics and the environment are two strong motivations for the young generation. This council allows for schools to review the past mistakes each university has made so, in turn, other universities will not make the same ones. It allows for different approaches and solutions to the same environmental problem. Three years later, the Big Ten & Friends has added surrounding schools such as the University of Notre Dame, University of Chicago, and the University of California (See What We’re Doing).

2.1.5 The Graham Environmental Sustainability Institute

The Graham Environmental Sustainability Institute is the heart of the research and education efforts for climate and sustainability issues on campus. The institute is chaired by Professor Don Scavia and was established in 2004 to create and explore interdisciplinary programs. The Graham Institute also develops outreach programs and promotes existing U of M research, education, and efforts related to sustainability (Planet Blue).

The Graham Institute is comprised of the institute staff, Deans Council, Executive Committee, and External Advisory Board. These diverse researchers and stakeholders help conduct assessments for university policy makers. In total, the institute fosters cross-disciplinary collaboration across various colleges and units at the University of Michigan (Scavia).

2.1.6 Student Organizations

Currently, there are 37 student organizations on campus with a diverse background on sustainability and climate change issues. These student organizations range from “The Squirrel Club” to “The Solar Car Team.” The larger student run organizations include Earthfest, The Student Sustainability Initiative, Green Wolverines, and the Planet Blue Ambassador Program (Planet Blue).

The Planet Blue Ambassador Program is a way for students living in the residence halls to serve as an “eco-rep” on campus. The program was formed in 2011 and is a tool to promote sustainable behaviors inside of dormitories. This is accomplished through various outreach programs targeted at first-year students and connecting ambassadors to university resources via the Office of Campus Sustainability and The Graham Institute (Planet Blue).

The Student Sustainability Initiative (SSI) is a collaborative group of students and organizations that promote environmental sustainability. While sponsored by the Graham Environmental Sustainability Institute, the SSI helps connect students seeking to pursue strategic sustainability related actions with the university administration, and vice versa. Round-tables are held every month to discuss environmental sustainability events, news and initiatives at the University of Michigan (Planet Blue).

2.1.6 Sustainability Overview at the University of Michigan

The University of Michigan has a great jump on sustainability and climate change. The university has established class courses to keep students motivated in environmental issues while also introducing students to present day problems to derive tangible solutions. These courses have evolved into multi-disciplinary design programs in Engineering, Art, LSA, and Business. Beyond the classroom, the students have formed over 37 organizations to create outreach programs and solutions for the campus and Ann Arbor area (Coleman).

In a 2011 speech to the university, President Mary Sue Coleman spoke on current environmental and sustainable initiatives. The University is recycling over 150 tons of material each year while pledging to meet LEED Silver standards for new major construction projects, some of which include renovations to the new Crisler Arena and Mott Children's Hospital. These milestones are the largest and most sophisticated building projects in the campus' 195-year history (Coleman).

The University of Michigan creates tangible goals with appropriate deadlines. The school refuses to sign the American College and University Presidents' Climate Commitment (ACUPCC) because it cannot set a date on carbon neutrality. Michigan is leading the pack in sustainability but it cannot guarantee a time at which the entire campus will become carbon-neutral. President Coleman states, "Sustainability defines the University of Michigan. Combine maize and blue, and you get green" (Coleman).

Having a university that has created administrative departments with paid, full-time employees has helped it spawn large environmental strides in sustainability. Students can become involved by taking their initiatives to the Student Sustainability Initiative that forms round-tables once a month. The SSI allows any idea or initiative to be heard by a combination of students and administrators. From here, great ideas can be proposed to the Special Council to the President for Sustainability. This chain of command will land the initiative to the Sustainability Executive Council, which is chaired by President Coleman herself.

2.2 The University of New-South Wales

2.2.1 Background

The University of New South Wales is a research-based university located in the immediate suburbs of Sydney, Australia. Founded in 1949, it is recognized as one of the world's leading scientific and technological research institutions. UNSW is a member of the Group of Eight, which is a group of leading universities within Australia, as well as one of the founding members of Universitas 21, an international network of universities that are research-intensive. With upwards of 50,000 combined undergraduate and graduate students, UNSW provides many opportunities for success in a vast array of disciplines.

2.2.2 Campus Sustainability

UNSW takes pride in being one of the world's leaders in sustainable research, and that has translated to the lifestyle on campus. There are many ways in which subjects such as climate change and sustainability are promoted. Whether it is through architecture, policy, or courses offered, the awareness amongst the university community is already in place.

In order to provide an incentive for the university community to come up with sustainable ideas, the UNSW Green Fund was established. The objective of the Green Fund is to provide the students or staff \$500 to help fund projects whose aim is to reduce the amount of impact that

the university has on the environment. It in many ways serves as a grant that is being put towards the advancement of the university's sustainability initiative.

2.2.3 UNSW Sustainability Office

In January of 2010, UNSW established a sustainability office to support the university's goals and aspirations pertaining to sustainability. They work with the different colleges on campus as well as student organizations to make sure that specific sustainability targets are met. The main goal of the UNSW Sustainability Office is to make operations on campus more efficient as well as more socially and environmentally responsible.

One of the specific tasks that the sustainability office is responsible for is reporting on what practices that promote sustainability are occurring around campus. This has been done through the UNSW Sustainability website (UNSW Sustainability) that lists, by category, what is being done. In addition, the office also reports the amounts of Greenhouse Gas emissions and the university's "carbon footprint." This includes providing a National Greenhouse and Energy Report to the Australian Department of Climate Change and Energy Efficiency, which has recently become a requirement for all universities and corporations.

Another task of the sustainability office is to create and modify the UNSW Environment Law Compliance Register, which lists the local and federal legislation that are relevant to the university's main activities that could have an impact on the environment. It serves as a resource for UNSW to comply with the laws and regulations set forth by the government. The register promotes compliance by listing the obligations that the university must uphold and the consequences for not cooperating with these rules.

2.2.4 Energy Sustainability

The university strives to promote energy sustainability through its applications around campus. The building that best exemplifies this commitment is the newly built Tyree Energy Technologies Building (TETB). Named after UNSW alumnus and philanthropist Sir William Tyree, it has become the new home for energy research at the university. The building is six-star certified, the highest rating given by the Green Building Council of Australia, signifying it as a world-class sustainable building. Some of the features of the building include well-positioned windows to provide maximum sunlight, the use of a trigeneration system, combining electricity and natural gas, and the use of bore water and rainwater to capture and reuse. The TETB is a symbol for what UNSW is striving to achieve in terms of energy sustainability.

The other buildings on campus have a motivational tool to manage their electricity usage in the form of a usage leaderboard. This table, which is on the homepage of the UNSW Sustainability website, shows the change in the weekly electricity reading from the same time one year ago. The purpose of this is to force some buildings, especially those towards the bottom of the list, to rethink their energy use and to find better, more efficient alternatives.

Some other ways in which buildings are becoming more sustainable is through photovoltaic systems assembled on buildings, replacing incandescent bulbs with more energy efficient lighting, and using gas to power their hot water systems instead of electricity. As mentioned earlier with the TETB, other buildings are also using both bore water and rainwater to meet the water demand. In order for the students and faculty to get behind energy sustainability, the university needs to take the first initiative, and so far, they are succeeding in that regard.

2.2.5 Transportation Sustainability

UNSW is located in a rather urban area, with the university just a few short miles from Downtown Sydney. With a huge student population in addition to the many faculty and staff members, there is a huge demand for adequate transportation to get to campus. One of the perks of being in a metropolis such as Sydney, is a well-established public transportation system, with buses, trains, and even ferries running throughout the day. Despite this, there are still many people who use cars as their preferred method of transport.

In order to promote more sustainability in transportation, UNSW has come up with a Campus 2020 Transportation Strategy. The goal of this is to reduce the dependence on cars to commute to and from UNSW. The way to reduce the need for cars is to reduce the number of spaces for cars that are available. Proposed in the plan is a reduction in the number of parking spaces around campus by approximately three percent every year as well as increasing the costs for parking in certain areas. In order to aid the people who will be most affected, the plan also proposes upgrades and expansion on the current public transport system and more cost-efficient accommodations closer to campus. In addition, UNSW also encourages everyone to consider walking or cycling as a better alternative to driving.

In addition, the university also gives a travel survey to all its students and staff members to gauge what methods the population are using for transportation. The results show that many people are still commuting by car over other options. The survey was used to aid the university in its Campus 2020 strategy. UNSW is also in the process of creating a Sustainable Transport Strategy that would expand on the Campus in 2020 and introduce new plans that could be implemented in the near future.

2.2.6 Sustainability Studies

Those who wish to come to UNSW to get an education have a wide variety of courses and degrees to choose from. Several of these are aimed to promote the teaching of sustainability in the classroom. As pointed out earlier, the TETB will be used as both an energy research building and as a platform to teach about alternative energy technologies. It will become a hub for the School of Photovoltaic and Renewable energy engineering, which specializes in research and training in solar energy and photovoltaic technologies. This program offered at UNSW is the first of its kind in the world.

The university does its part to promote climate studies through the UNSW Climate Change Research Centre (CCRC). This is a multidisciplinary group that applies scientific principles to try to solve some of the biggest questions concerning global climate change and weather extremes. They do this through using global and regional climate models as well as climatological data coming from various sources. There are many ongoing projects that the students can get involved in at both the undergraduate and graduate levels. The CCRC is part of the Australian Research Council's Centre of Excellence for Climate System Science, which is a countrywide consortium of universities and organizations whose goal is to develop a better understanding of the climate change situation to help enable adaptation and management strategies.

Some other sustainable offerings at UNSW include the UNSW Water Research Centre and the UNSW Connected Waters Initiative. The purpose of both these groups is to develop a better understanding of water resources and to provide tools that can help make aquatic and atmospheric environments more sustainable. Within the Water Research Centre is a Sustainability Assessment program that provides consultation to businesses and governments to help make more informed decisions about their daily practices. The Connected Waters Initiative focuses on the relationship between groundwater and surface water, one that is not properly understood. It also gives several options as to how members of the university can get involved.

2.2.7 Student Involvement

In order for the university to develop a good communication system about sustainability and climate change, it needs the help of student organizations to help generate and maintain interest. The most prevalent of these groups is Arc's Environmental Collective. Arc is the main student organization on the UNSW campus with over 5000 members and its Student Representative Council has many subsections that handle various issues concerning the university. The Environmental Collective is a group of students who are committed to sustainability, both on the UNSW campus and off-campus in Sydney.

This organization is responsible for creating environmental policy measures and provides reports to document their progress. The latest Environmental Action Plan, written in 2010, provides a few objectives and targets pertaining to various practices on campus, provides a timeline to achieve these goals, and offers ways to report progress. Also, an Environment Management Plan was written in 2011 to create a strategy for environmental reductions with student development and implementation, which included the potential for curriculum integration.

The group has also created a campaign called RenewUNSW, which is pushing for the campus to run entirely on renewable energy resources. Despite the many ways in which the university has promoted sustainability, most of the campus is still run by coal, which adds to its carbon footprint. There is also a petition on the website to join the initiative:

“UNSW is a brilliant university. We are a world leader at renewable energy development, and contribute a great deal to the global understanding of climate science. But UNSW has a dirty secret - it is powered primarily by coal, which emits massive amounts of carbon dioxide. It doesn't have to be this way!

Other campuses around Australia are making the change to renewable energy and we can too. UNSW can buy energy from clean sources, build renewable energy on campus and offset the costs by investing in energy efficiency.

Let's make the switch to a clean energy campus!” (Marshall)

This campaign was started just a couple of months ago in February 2012 and is completely student-run. Word is slowly starting to spread across the university and this dream could one day become a reality.

Another organization that has dealt with climate change is UNSW's chapter of Oxfam, which is an organization that is striving to end poverty around the world. Their belief is that climate change undoubtedly has much greater effects on the world's poorest and marginalized people. That's why they have created a petition to UNSW and its students to create renewable energy targets and reduce its carbon footprint.

2.2.8 Sustainability in Sydney

Given that UNSW is located in the vicinity of one of the world's major metropolises, it is important to note what is being done in the area surrounding the university. The city of Sydney has come up with a plan called Sydney 2030, to reduce the emissions of Greenhouse Gases by 50% in the city within the next twenty years. This is an ambitious target that, if executed, would make Sydney amongst the world's leaders in environmental sustainability, which would also aid in making the city more vibrant and innovative.

A few other organizations around the city have been promoting sustainability as well. On the community level, a group called Green Champions was created in March 2010 to make neighborhoods more sustainable through education and mentorship given to regular citizens. In the business sector, the HUB is a group funded by the federal government that encourages responsible business practices in Sydney. On an individual level, the Planet Ark Environmental Foundation was created to teach people how to reduce their impact on the planet, whether at home, work, or in the community.

2.2.9 Sustainability across Australia

UNSW has done several things to promote sustainability and climate change around campus, but in order to create a common understanding across state and country lines, a network needs to be created. Established in 1990 by UNSW's Environmental Manager, Australasian Campuses Towards Sustainability (ACTS) strives to promote sustainability in the operations, research, and curriculum across the education sector. ACTS is a group of 50 universities who are supporting

the change to sustainable practices both at universities and businesses as well as to build partnerships at the local, regional, and international level.

Some of the resources that ACTS has to offer include a seasonal newsletter that provides information of ongoing projects and activities, an annual report on the progress that is being made, and an online forum for students and university faculty to use. However, at this time one has to be a member of one of the institutions to access much of the material, which is not giving much of a voice to the general public. The group is also rather expensive to join if not a member of a participating university. Aside from that, it is a well-designed group that does the important job of promoting sustainability across the country and continent.

2.3 Bowling Green State University

2.3.1 Background

Located about 25 miles south of Toledo in Bowling Green, Ohio resides the main campus of Bowling Green State University (BGSU). Founded in 1910, BGSU enrolls over 20,000 students (graduates and undergraduates) and employs over 800 faculty members each year. The main campus in Bowling Green is largely residential as it is home to approximately 6,500 students across its 18 residence halls and 28 Greek housing units. The student body is actively involved in extracurricular activities culminating in over 300 student organizations and 56 intramural sports. The University acknowledges a wide variety of student success including participation in service-learning and/or community service projects, placement in international academic competitions, and student-athlete excellence both on the field at the Division I National Collegiate Athletic Association (NCAA) and club levels and in the classroom. Major learning objectives for its students include intellectual and practical skills, consisting of critical and constructive thinking, communication, and engaging others in action, general and specialized knowledge, personal and social responsibility, and the ability to integrate, apply and reflect (*BGSU: About BGSU*).

Lead by President Mary Ellen Mazey, Ph.D., BGSU is made up of eight colleges: the Colleges of Arts and Sciences, Business Administration, Education & Human Development, Health & Human Services, Musical Arts, and Technology, the Graduate College, and the Firelands College - a branch campus located in Huron, Ohio. The University has been named one of the top 100 public universities nationwide by the *U.S. News and World Report*, recognizing programs in biology, business, education, English, fine arts, industrial/organizational psychology, physical therapy, psychology, public affairs, rehabilitation counseling, sociology and speech-language pathology, first year programs and residential learning communities, and has named the online master's degree in education programs as one of the best in the country. Prominent alumni of the University include Elleen O'Neill, Kristen Bunner, Steve Demos, Jimmy Light, Jennifer Higdon, Brenda Hollis, Alyssa Czisny, Nate Thurmond, Sgt. Joshua Falso, and Arnold Rampersad. As for the city of Bowling Green, each year it plays host to relatively large-scale events such as the Black Swamp Arts Festival (BSAF), the National Tractor Pull, and the Wood County Fair (*BGSU: About BGSU*).

2.3.2 Sustainability Initiatives

The BGSU Office of Campus Sustainability was opened in 2008 to improve the efficiency of facilities, “greenen” practices and processes, and strengthen the culture of environmental stewardship for the university community. To fulfill these initiatives, this office has put quite a few programs in place, including those that pertain to increasing energy efficiency and recycling and waste reduction. Due to the nature and purpose of this project, this section will primarily focus on the sustainability initiatives at the student involvement level to gain a better understanding of the foundation set in place in an ultimate attempt to build a network of students involved in sustainability and climate change enrolled in different universities. These initiatives at the student involvement level include Friday Night Lights, Green Tailgating, the Orange Bike community bike share program, the Student Green Initiatives Fund, and sustainability in BGSU residence halls (*BGSU: Campus Sustainability*).

The first student involved sustainability initiative presented in this section is Friday Night Lights. Friday Night Lights is a group of student volunteers who meet on Fridays at 6:30pm at the Student Union and proceed to go around campus turning off lights in the academic buildings. The work usually only takes about an hour and is completed with the intention of reducing unneeded energy usage in powering lights in unoccupied rooms over the weekend. These efforts saved BGSU a total of over \$25,000 in energy costs for the 2010-11 academic year. (*BGSU: Campus Sustainability*).

The second student involved sustainability initiative presented in this section is Green Tailgating. Funded by a grant received by BGSU from the Ohio Department of Natural Resources to promote recycling and waste management at sporting events, Green Tailgating represents the primary means to fulfill the recycling and waste reduction initiative at home football contests. To do so, before games, student volunteers set up collection sites throughout the stadium and tailgating areas. Additionally, green recycle bags are handed out to people in these areas to further promote recycling. Total recycled weight collected for the 2011 football season is literally tons, amounting to 21,922 pounds for an average of 3,654 pounds per game (*BGSU: Campus Sustainability*).

The third student involved sustainability initiative presented in this section is the Orange Bike community bike share program. This program is designed to provide students with a cheap, convenient, and sustainable means of transportation around the main campus. Orange bikes are placed and locked to bike racks outside of academic buildings. The bikes are made available to students by providing universal access keys to students who apply for them. Students with access to the bikes can ride them to their destination, then lock them to nearby bike racks for the next students to use (*BGSU: Campus Sustainability*).

The fourth student involved sustainability initiative presented in this section is the Student Green Initiatives Fund. This fund, made for the purpose of funding “green” projects, comes from a five-dollar fee as part of each student’s tuition bill. Students are able to opt-out of the

fee if they do not wish to pay it. Money from the fund is made available to students who apply to use it for a project that has the intention of making BGSU more environmentally friendly, energy efficient, and/or sustainable. Funded project examples include energy producing cardiovascular equipment, electric go-cart, and TV timers, among others (*BGSU: Campus Sustainability*).

The fifth student involved sustainability initiative presented in this section is the Sustainability Internship Program. This is a program designed to give academic credit to students for participating in sustainability projects. Some of these projects include athletic facility recycling and waste management, the orange bike share program, and any “green” event or program. Students can receive internship credit during the semesters for which they have a full course load making this an attractive option for students needing internship credit to satisfy their graduation requirements (*BGSU: Campus Sustainability*).

The sixth and final student involved sustainability initiative presented in this section is sustainability in BGSU residence halls. This initiative encourages resident advisors (RAs) to motivate their residents in the residence halls to save energy. A couple of the measures RAs urge their residents to engage in are using energy efficient computer settings and turning off lights in the common areas, such as lounges and bathrooms, when not in use (*BGSU: Campus Sustainability*).

Friday Night Lights, Green Tailgating, the Orange Bike community bike share program, the Student Green Initiatives Fund, the Sustainability Internship Program, and sustainability in BGSU residence halls are each rather simple but effective groups and ways in which students can become involved in sustainability at BGSU. By having a committed student presence in each of these initiatives, students lend a helping hand in sustainability efforts at the university, efforts that not only increase the energy efficiency and contribute to recycling and waste reduction, but also increase “green” awareness among the student body; these are each tasks for which the office of sustainability was created to accomplish.

2.3.3 American College & University Presidents’ Climate Commitment (ACUPCC)

In implementation of the Office of Campus Sustainability, BGSU has developed a number of sustainability initiatives, including the ones discussed in the previous section. While sustainability and climate change are often grouped within the same context, taking part in sustainability initiatives does not directly correlate with solving the climate problem. Sustainability initiatives, while certainly help mitigate climate change on local scales, do not make great strides, however, in doing so all together on much larger, global scales. As an individual institution, a single university cannot do all that much in addition to engaging in sustainability initiatives to combat the climate problem directly. What one can do, although, is take measures to increase awareness about the science behind climate change internally, among both students and faculty, and externally, extending to the community both surrounding the university (the city of Bowling Green) and beyond. The American College &

University Presidents' Climate Commitment (ACUPCC) was launched in December of 2006 with these intentions in mind (*Presidents' Climate Commitment: Mission and History*).

Beginning with 12 founding signatories, the ACUPCC has grown today to a commitment of 152 United States (US) colleges and universities. As part of the commitment, participating colleges and universities comprise of a network of institutions having the intentions to strive for climate neutrality, defined as emitting zero net greenhouse gas (GHG) emissions, and to become leaders in educating students in sustainability and climate change. Upon signing the commitment, participating colleges and universities are to initiate a climate action plan to achieve climate neutrality. Additionally, they must choose at least two of seven provided tangible actions to initiate, which reduce GHG emissions while the greater plan is being developed. Finally, these colleges and universities are required to submit emissions reports and progress reports regarding the status of implementation of the climate action plan. These reports are made publicly available by submitting them to the ACUPCC Reporting System, further encouraging participating institutions to be compliant within the proposed guidelines by putting their reputations at risk (*Presidents' Climate Commitment: Mission and History*).

To date, neither Presidents of the University of Michigan nor BGSU have signed the commitment. While President Mary Sue Coleman of the University of Michigan has publicly made it apparent that she does not plan on signing the commitment, BGSU President Mazey has put in place a committee of representatives to draft a climate action plan to gain a better understanding of what sustainability initiatives would be required of the University upon signing the commitment (*BGSU: Campus Sustainability*).

2.4 Trade Study Summary

By all the programs around campus that promote sustainability, UNSW has established itself as one of the world leaders in sustainability and climate change education and research. Both through on-campus programs and partnerships with other universities, it is clear that UNSW is taking the actions that are needed to spread awareness of these two key issues. The next steps that need to be taken are to build on the already established student groups and organizations. While some of these groups are thriving and getting more members and resources, there are other groups that have good ideas, but do not have the same infrastructure and are not sustaining. If more groups can build off of the very thing they are supporting, there might be even more university involvement as a result. With this, the goals that are set forth by a group such as RenewUNSW could actually be achieved, which would benefit both UNSW and the world's sustainable agenda in the process.

Lead by President Mazey and upon establishing its office of campus sustainability in 2008, BGSU has implemented a number of sustainability initiatives. Like the University of Michigan, however, it has yet to become a signatory of the ACUPCC, although President Mazey has put in place a committee to create a climate neutrality action plan for the purpose of gaining a better understanding of what sustainability initiatives would be necessary upon signing the commitment. In working with the BGSU Geography Club, it is apparent that there is interest

among its members in establishing a network of students involved in sustainability and climate change across a number of universities. By motivating students to collaborate internally and externally, with a little funding and perhaps a faculty sponsor, a network of students actively working together in the fields of sustainability and climate change can be developed. Along with forming student organizations, universities can benefit from offering classes and concentrations involving sustainability and climate impact. With the job market expanding in these sectors, workers will need to fill the void. Having such a network of students and professionals could make strides in an attempt to solve the climate problem.

3. Climate Action Plan

3.1 Student Networking

One of the intended purposes of this project is to develop a network of students involved in sustainability and climate change enrolled in different universities. In trying to develop this network, we have been actively communicating with a group of students at BGSU called the Geography Club. While it is evident that quite a few sustainability groups exist both at the University of Michigan and BGSU, groups of students more focused on climate science and attempting to solve the climate problem are not as numerous. The BGSU Geography Club, while an admittedly young group, poses the mission statement to “Work to introduce and promote the knowledge of geographical issues on the BGSU campus.” These geographical issues include the issues associated with climate change. Unfortunately, being that they are a young group, they are not yet too involved in communicating climate science on the BGSU campus.

In collaborating with the club’s President, we have come to the conclusion that in order to begin constructing the foundation for a network of students involved in communicating climate science, students need motivation to collaborate both internally, with students at their own universities, and externally, with students at other universities, which will ultimately start the web of communication sought for. With a little funding and perhaps a faculty sponsor, this motivation can come in the form of hosting climate events and student lead seminars, creating research groups, and travel. Climate events, including renowned climate scientist presentations or climate problem solving workshops, for example, if advertised well enough can bring students with similar interests from multiple universities together. Student lead seminars, in which students take turns presenting research or current topics in a closely related class, can do the same in addition to giving students experience presenting in front of non-hostile environments. In creating research groups spanning across multiple universities, not only can students gain a better understanding of what others are researching at other institutions but students involved in similar fields can collaborate with one another, a process that is beneficial to both problem solving and learning. Finally, hosting events of the like and developing these connections, creates the need for travel. With a little funding and a faculty sponsor, arrangements for which students are given the opportunity to travel and visit students and other universities can certainly be accommodated.

Across each institution, it is apparent that there are quite a few student groups involved in sustainability. Finding student groups involved in sustainability and climate change, however, is not such an easy task. The efforts of sustainability offices at each university are largely for the sake of energy efficiency, as becoming more energy efficient can save universities thousands of dollars in energy costs. While these initiatives put in place by sustainability offices also happen to mitigate climate change on small scales, solving the climate problem as a whole involves not only adopting practices such as climate neutrality, but becoming leaders in educating and communicating the science behind sustainability and climate change. This idea is reflected by the ACUPCC which urges colleges and universities to not only become climate neutral, but to become role models for the communities they are in. Merging the interface between sustainability groups, which have put in place a number of initiatives helping institutions in the areas of energy efficiency and recycling and waste reduction, and much less prominent climate change groups, focused more on communicating climate science and working to solve the climate problem, will ultimately yield the most successful results in terms of becoming leaders in educating, communicating, and engaging in sustainability initiatives and climate change awareness. If a network of students involved in sustainability and climate change between universities can be established, it would ultimately be responsible for developing these connections and becoming these leaders.

3.2 Carbon Combat

Convincing university presidents to sign the Presidents' Climate Commitment (PCC) is a great start to achieving climate neutrality. For those universities for which this might be more difficult, like the University of Michigan, there are other ways to work toward climate neutrality and spread climate change awareness. One event that could bring a competitive aspect to achieving climate neutrality is a "Carbon Combat." Like the annual "Blood Battle," in which the University of Michigan and the Ohio State University host a blood drive, each rival school competing to donate more pints of blood, a "Carbon Combat" would entail rival schools competing to emit the least total GHG emissions per full time enrollment. For signatories of the ACUPCC, this would be especially easy to track, as participating schools are required to submit emissions reports.

For universities that are not part of the ACUPCC, a monitoring point will need to be established. For example, the University of Michigan has the Planet Blue organization that encompasses the Office of Campus Sustainability. Within this network, they can set up a monitoring link to show daily, weekly, or monthly progress on GHG emissions and sustainability. This would help students stay motivated because the Carbon Combat encompasses an entire school year. In turn, the contest will allow multiple campus organizations to get involved and reduce their own carbon footprint. Whether it is spending a few hours on a Friday shutting off the college lights or investing into new, environmentally friendly technology, the Carbon Combat allows for students in all classes, organizations, and daily life to stay involved in sustainability and climate change.

In the future, this idea can be proposed to conference organizations such as the Big Ten & Friends to expand into a regional competition. From here, the sky is the limit. The final goal of the Carbon Combat is not to become carbon neutral by a certain date, but to continue the motivation to reduce the carbon footprint daily.

4. Summary

It can be argued that sustainability is microscopic while climate change is a macroscopic subject. Over time, sustainability morphs into climate change but it cannot be done without a network of regions competing for the same prize. With over 4,000 colleges and universities spread across the US, tackling sustainability with climate change can be accomplished. A total of 152 college and university Presidents have signed the PCC and have dedicated their time to a certain date in which their campus will become climate neutral. Other universities have set up administrative offices, classes, and degrees to tackle this challenge. By weaving these student networks together, through the Carbon Combat, the US can morph sustainability into climate change and be at the forefront of the environmental challenge.

Finally, students can become the leaders in sustainability and climate change by helping their school win the annual challenge inside the classroom, within their organization, or through their everyday lives. The campus goal is the same everywhere; grab bragging rights over your rival. This will not take one organization in each campus but will involve multiple groups working for the same goal to boast their universities name and to claim everlasting glory.

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