

**Green, blue and gold: Recommendations for Environmentally Conscious Athletics at
SMCM**

**An Independent Sustainability Project
Submitted for Consideration to Professor Barry Muchnick
For ENST 450: Applied Sustainability Practicum**

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Executive Summary

As sustainability becomes an increasingly important issue around the world, people are looking for more ways to incorporate environmentally sustainable practices into their lifestyles. Athletics and recreation have a tendency to get overlooked when thinking of ways to increase sustainability. Additionally, many people ignore or do not realize the capacity of athletics to bring together communities, thus serving as a perfect platform for reaching out and encouraging environmental stewardship. That is why for my project I am putting together a list for feasible, sustainable practices that St. Mary's athletics teams and the Athletics and Recreation Center can implement now or in the future, depending on their interests and availability of funding. Not only will these ideas help "green" the ARC and athletics teams, but they will increase environmental knowledge within the community, with the ability to transcend that knowledge to other fields and "green" St. Mary's as a whole.

Introduction

Sustainability is defined as meeting the needs of current generations without taking away from the quality of life of future generations. In the fight to become a climate neutral school and achieve greater sustainability, St. Mary's has done many admirable things.

According to the Environmental Protection Agency, in 2014-2015, St. Mary's led the Capital Athletic Conference in the amount of green power as a percentage of total electricity used at 85 percent.¹ From implementing energy efficient washers in the laundry rooms to partnering with organizations such as Bon Appétit which exercise sustainable practices, it is apparent that St. Mary's strives to live by sustainable standards. However, there is one field that has been overlooked by many colleges and universities. That field is athletics.

Athletics are frequently left out of sustainability practices because it seems that people often forget how closely athletics and sustainability are linked. Athletics departments are often disconnected from other academic departments that emphasize sustainability and staff tend to lack appropriate knowledge of sustainable practices that could be applied to their facilities. Furthermore, concerns over costs are a leading factor in the resistance for schools to make "green" adjustments. For these reasons, athletics and recreation centers remain huge contributors to the amount of emissions produced and resources used by institutions.

On a more positive note, the large impact generated by athletics departments leaves extensive room for improving environmental stewardship. Athletics have the potential to draw in and reach a wide range of people because there are elements of athletics that appeal to everyone. Whether it's the competitive nature of sports, an outlet for stress, a method of exercise, or the social aspect of playing on teams or watching games, sports and fitness are highly venerated within society.

¹ "Green Power Partnership: 2014-2015 College and University Green Power Challenge," EPA, April 6, 2015, accessed May 7, 2015, http://www.epa.gov/greenpower/initiatives/cu_challenge.htm.

Specifically at St. Mary's, athletics plays a prominent role in campus life.

Approximately 18% of the student body is involved with athletics teams. That's about one in every five students. Additionally many students and staff use the Athletics and Recreation Center (ARC) on a daily basis. Facilities at St. Mary's include the aquatic center, the track and fields, the climbing wall, the recreation courts, and the fitness center, which is comprised of the weight room, the two movement rooms, and the cardiovascular machines. Not only are these facilities used by St. Mary's students, faculty and staff, but they are open to the outside community as well. Thus, the gym could serve as an excellent platform to reach out and influence people within and around our community, encouraging sustainable practices inside and out of the ARC and simultaneously reducing our environmental footprint.

This project aims to "green" the St. Mary's ARC and athletics teams by providing a list of suggestions for sustainable practices that can be implemented now or in the future, depending on the resources and funding available at the time. These suggestions not only address the environmental impact generated by sports teams on game days, such as transportation methods and waste, but they aim to eliminate resistance due to costs, by providing sustainable options that the school can implement at different cost levels.

Context

As stated earlier, athletics have a major influence on colleges and universities. Not only are sports beneficial to students, forcing student athletes to learn good time management skills and to become dependable leaders, but there are many implicit benefits to the schools themselves. Successful and well run athletics departments are one of the key reasons students

choose to apply or enroll at schools.² In a study performed by Doug Chung, an assistant professor at the Harvard Business School, it was found that when athletics teams increased in athletic performance, meaning they went from losing to winning at least ten games per season in the last two years, applications to the school rose by 18.6%.³ This surge in applications not only comes from prospective varsity athletes but from non-athletes and students interested in intramural sports. The reason for this is because schools with thriving sports programs are often viewed as providing greater social experiences for students and according to a study conducted by UCLA, social environment is a deciding factor for approximately 40% of prospective students.⁴

As athletics cause the number of incoming applications to increase, schools are exposed to more students with greater academic standing. Thus, colleges and universities have the opportunity to be more selective in their admission process, further increasing the academic standing of the school as a whole. In addition to this, athletics programs provide major sources of funding to colleges and universities and can help the schools gain national recognition.

Along with the benefits of increasing enrollment, funding, and academic standing, athletics and recreation centers are also fundamental to creating a “greener” campus and society. Sports and physical activities have the ability to bring people together from unrelated disciplines based on a shared or common interest. According to studies, “more than 75 percent of college students participate in recreation department programs” and nationally, and

² Brad R. Humphreys, Brad, and Michael Mondello, "Intercollegiate Athletic Success and Donations at NCAA Division I Institutions," *Journal of Sport Management* 21 (2007): 273-76.

³ Doug J. Chung., "The Dynamic Advertising Effect of Collegiate Athletics" (paper presented at the annual INFORMS Marketing Science Conference, Boston, Massachusetts, June 7-9, 2012).

⁴ John H. Pryor, Kevin Eagan, Laura P. Blake, Sylvia Hurtado, Jennifer Berdan, and Matthew H. Case, *The American Freshman: National Norms Fall 2012*, Los Angeles: Higher Education Research Institute, 2012, accessed April 30, 2015, <http://www.heri.ucla.edu/monographs/TheAmericanFreshman2012.pdf>.

there are more than 5.5 million club athletes, who participate in non-varsity sports.⁵ Thus, integrating sustainable practices into college athletics allows us to reach a diverse body of people and ingrain environmental stewardship into the campus culture, while lessening our environmental impact along the way.

Incorporating sustainability into general university and college practices is essential to the proceedings of the environmental movement as a whole. Yet, it is a complicated to undertake for many reasons. Sustainability needs to incorporate a multitude of disciplines, ranging from engineering and environmental sciences to business and law. Thus, because Colleges and universities are usually organized into specific academic areas, developing research, courses and curriculums, and sustainability initiatives may require overcoming disciplinary and departmental boundaries. As a result, many colleges take small steps, but have not taken a comprehensive approach.⁶

However, the campus environment offers many opportunities. College is not only where young minds develop, providing students with a wholesome education, but it prepares students to go out into the real world and apply what they've learned, developing it further for the betterment of the community⁷. These students will become the leaders and policy makers who address global crises, such as climate change, and have the ability to make changes in the world. Additionally, campuses are a great environment through which students can develop their own sustainable projects or suggest practices to the school. Colleges offer students and faculty a community within which to test their ideas and estimate the overall feasibility before taking their ideas into the "real world." This is exactly what our Applied Sustainability course aims to achieve through these student projects.

⁵ Alice Henly, "Collegiate Game Changers: How Campus Sport is Going Green," *NRDC Report*, August 2013, accessed February 26, 2015

⁶ Annie W. Bezbatchenko, "Sustainability in Colleges and Universities: Toward Institutional Culture Shifts," *Journal of Student Affairs at New York University* 6 (2010), accessed April 13, 2015.

⁷ Ibid.

In recent years, many colleges have integrated sustainability into their curriculum and principles, developing coursework in different disciplines, from biology to public policy, which deal with sustainability and environmental issues. For example, the University of Michigan created the course, “Sustainability and the Campus,” a project-based course supplemented by lectures and activities on leadership and organizational change.⁸ However, changing the curriculum is not enough. Sustainability is a concept that must be integrated both inside and outside of the classroom, through clubs, athletics, service events, and all other activities that affects life on campus.

The process of promoting sustainable thinking and building awareness for environmental issues is just as important as the actual context. In order to reach the greater student body, who may not be involved in activities or courses that touch on sustainability, it is important to advertise and include sustainability where other people can see it. For example, including stewardship in the school’s mission is an effective way to stress the importance of sustainability to students and attract prospective students who live by environmentally friendly standards. Other methods of advertising, including putting up posters or handing out pamphlets that remind students and community members of how their actions affect the environment. According to one study, the type of advertising used can have different effects on the public. It was found that posters stressing the negative consequences of actions, such as not recycling, were more effective at garnering support than posters that stated the benefits of recycling.⁹ Identifying how people’s actions can have negative impacts is more effective because it plays into the human feeling of guilt, and allows people to feel better when they make subsequent changes in their lifestyles. Thus, this information is imperative to increasing sustainability awareness.

⁸ Walter Filho, "Creating and Assessing a Campus Culture of Sustainability: The University of Michigan Experience" (Frankfurt: Peter Lang, 2012) 557-67.

⁹ Marguette Rigoglioso, "How Do You Encourage Recycling?" *Insights by Stanford Business*, Stanford Graduate School of Business, April 20, 2012, accessed March 1, 2015.

Case Studies and Project Overview

Approach: Due to the common disconnect between athletics and sustainability, I found that there were many areas that did not incorporate “green” practices in the St. Mary’s athletics department, and I felt that each sector deserved equal and immediate attention. When first developing my project, I did not take into consideration the many possible practical constraints. I had some specific ideas that I discussed with Tom Fisher, the director of the ARC, and found that there were cost issues and that some equipment was not ready to be replaced. Dr. Muchnick, the professor for our Applied Sustainability course, suggested that I instead put together a best sustainable practices guide for college sports. Similar guides have been put together by other schools, such as Warren Wilson College and the University of Utah, but tend to focus on overarching ideas for everyday activities or the campus as a whole, rather than focusing specifically within athletics. Dr. Muchnick also suggested that I break down the guide into three categories: 1) low cost and most feasible practices to undertake in the short term; 2) practices that are currently out of reach but viable in the near future; and 3) big picture or capital intensive projects that might be undertaken farther down the road.

However, while attempting to make this guidebook, I realized proper development would require more research and time than I had available for this project. Instead, I was able to conduct additional background research and find information on some specific approaches that other schools have taken and that might be appropriate for St. Mary’s. This approach allowed me to broaden the scope of my project beyond what I originally envisioned, enabling me to look at multiple projects with different costs and time horizons. I have organized this

information into a series of suggestions or recommendations for sustainable practices that St. Mary's could undertake in the sports and recreation areas.

Sustainable Recommendations/ Suggestions:

1) Currently viable practices that are low cost and most feasible. These are the ideas that are least likely to have opposition and are the easiest to employ.

Ideas include implementing motion sensor lighting in the movement rooms, gymnasium, recreation courts, and bathrooms of the ARC, where people tend to forget to turn off the lights. According to Dartmouth College, motion sensing lighting helped them to reduce lighting costs by as much as 60% in their recreation center.¹⁰ This drop in costs is directly related to energy savings in addition, helping to reduce emissions from the power plants which supply the electricity. Additionally, a second water bottle refill station could be added to the gym. Only one of the two fountains has been converted, yet it has had an impactful role in encourages students to drink from reusable bottles rather than purchasing plastic water bottles from the vending machines. These stations not only provide filtered, free water to the students, but on the scale of expenditures, they cost between 300 to 900 dollars, depending on the brand.

In terms of reducing waste, the placement of additional recycling bins and adding composting bins around the gym is necessary. Currently no compost containers are available, and the only recycle bins reside outside the ARC, leaving students to dump all their waste in the easily available trash cans. It may not seem like the ARC is an appropriate place for compost bins, but many people who use the gym are concerned with their general health and fitness. I have witnessed multiple people in the ARC snacking on healthy fruits such as oranges and bananas, for which the

¹⁰ Henly, "Collegiate Game Changers."

peals could be composted instead of thrown away with the mainstream trash. Many students also use the ARC as a shortcut to north campus, therefore it would be beneficial to provide compost bins for students who may be eating as they pass through.

Other options, which would have zero cost for St. Mary's are all about encouraging environmental stewardship. Following in the footsteps of other schools, like the University of Washington, St. Mary's could record public service announcements using the school mascot, Solomon, to inspire athletes and students to recycle. This PSA could be played on the TV screens at the gym and throughout campus, or be placed on the athletics website for everyone to see. Furthermore, using the competitive nature of sports to our advantage, the school could create a sustainability challenge in which different athletics teams compete to be the most environmentally friendly.¹¹ For example, teams could compete to see who can garner the highest number of service hours or generate the least amount of trash at games.

2) Practices that are currently out of reach but viable in the near future, likely within 5 to 10 years. These suggestions are also slightly more cost intensive.

Stepping slightly outside the focus of the gym, sustainable alterations could be made within the athletics teams. I suggest the school invest in team uniforms and jerseys made from recycled materials. Specifically, Nike recently developed a line of uniforms for NCAA basketball teams called Hyper Elite, which are made purely from

¹¹ "Colleges and Universities Invited to Compete in GameDay Recycling Challenge," modified August 18, 2014, accessed February 26, 2015, <http://gamedaychallenge.org/wp-content/uploads/2012/08/GDRC-Registration-Open-Press-Release-8-18-142.pdf>

recycled polyester from plastic water bottles.¹² Each uniform reuses 22 to 23 recycled bottles, without taking away from the quality of the uniform. Individual uniforms would cost up to \$120 dollars, which is not terrible, but costs would rise because uniforms are needed for around three hundred student athletes, as well as for away game uniforms.

Another idea is to replace the current exercise machines, such as treadmills, and bikes, with electricity generating machines, or retrofit the machines with their own generators to return electricity back into the grid. The less costly of the two, retrofitting current equipment, would cost between 700 and 1000 dollars per machine, which is relatively the same price as the regular cardio machines St. Mary's would buy. The University of Kansas retrofitted 15 of their machines and on average were able to produce 1.2 kilowatt- hour per day of energy, which is enough to power a light bulb for 2.5 days or laptop for 24 hours. This estimated electricity produced by one machine in a year is worth about \$18 dollars which may not seem cost effective.¹³ However it is vital to remember that the purpose of sustainable practices is not solely about saving money but about saving the environment, even if that means losing some initial investments. These products advocate for a cause that is vital to the wellbeing of our planet, teaching people about the many ways to be environmentally friendly and the many possible routes of action.

3) Big picture or capital intensive projects. These are the projects that would have the largest beneficial impact, but are not currently feasible due to budget constraints.

¹² "Eight NCAA Basketball Teams Ready for Rivalries with New Nike Uniforms," last modified February 20, 2015, <http://news.nike.com/news/nike-basketball-unveils-new-uniforms-for-eight-select-ncaa-basketball-teams>

¹³ "Sustainable Fitness Equipment Receives Mixed Reviews," last modified June 1, 2012, accessed March 26, 2015, <http://clubindustry.com/manufacturers/sustainable-fitness-equipment-receives-mixed-reviews>

However, this does not mean we should ignore these projects, as they may become feasible in the future or viable if the school were to receive funding from GSMRF.

Such projects involve buying or renting hybrid coach buses to take the athletics teams to and from games. These buses would be diesel/ electric and use regenerative braking, which transforms the energy used to slow or stop the bus into kinetic energy that can be saved for later use.¹⁴ Currently there is little availability in the market for this type of technology, with Baker's Coaches being one of the only companies outputting these busses. However this technology is expected to become much more widespread in the future.

Changes should also be made to help specific teams become more sustainable. One issue Mr. Fisher brought up is the unsustainable amount of chemicals (acid and bleach) used to disinfect the pool. These chemicals must be changed every other day, causing the school to go through hundreds of barrels. While expensive, the project would cost around \$200,000, St. Mary's could retrofit the pool to use an ultraviolet disinfectant system. This idea was first implemented by the University of Pennsylvania and has allowed them to reduce the amount of chlorine in their pools by at least 50%.¹⁵ Not only does the UV disinfectant system have benefits for the environment because chlorine is detrimental to organisms in the water and soil, but the decrease in chlorine has been shown to decrease the amount of respiratory issues occurring in the University of Pennsylvania swimmers.

I recommend that ideas within part one be considered and implemented relatively soon. There is no reason why the school should not get behind those practices. Suggestions in part two and three will most likely need greater discussion

¹⁴ C.C. Chan, "The State of the Art of Electric and Hybrid Vehicles," *Proceedings of the IEEE* 90.2 (2002): 247-275.

¹⁵ Henly, "Collegiate Game Changers"

by the St. Mary's administration before being put into action. The student body should also have input in these decisions.

Outcomes

While it was my initial intention to create a best sustainable practices guide for St. Mary's athletics, I quickly came to realize I did not have the time or resources to actually implement this idea. A guide would have required a much more extensive survey of possible approaches and then research and input on practices that can be followed by the student body on a daily to weekly basis. Thus my project has transformed from a best practices guide into a list of recommendations or suggestions for making St. Mary's sports and the ARC more sustainable in the long term.

Difficulties that I faced in this project include the fact that many of the practices I researched were implemented at much larger institutions, making it difficult to tell if implementation would be feasible at a smaller school like St. Mary's. Additionally if I were to do this project differently, next time I would try to enlist the help of students on the athletics teams to come up with sustainable suggestions for the department. This would give me additional insight and an inside view into what students within the athletics field think needs to be changed. A guide with actions that students could take on a daily or weekly basis, with this kind of input, would be valuable to produce in the future.

I have come to realize through this project that it is difficult to make extensive changes in how a college thinks about sustainability and takes action to improve it, especially when addressing just one general area (sports and recreation). Although the intentions may be good, there can be inertia and many practical constraints that are hard to deal with. In order to make real and long lasting changes, a college has to increase its sustainable

knowledge and skills. Some of these include making sure there is a shared definition of what sustainability is, connecting sustainability to what matters to the school in terms of environment/health issues, social justice, and economics, generating support through good communication, designing holistic programs and policies, and being strategic.

Conclusion

College campuses around the nation have shown increasing attempts to become more sustainable. One of the areas colleges are starting to make progress in is sports and recreation, however, there is still a lot of progress to be made. It is vital to the sustainability movement that gyms and recreation centers hold a more defining place in the plans and changes to be implemented. Athletics departments have an unquestionable potential to lessen school's environmental impacts and rally student support for environmental causes. Not only do gyms and sports teams use extensive amounts of electricity and generate a lot of waste, from travelling to their use and consumption of equipment and machinery, but numerous students and communities' members use athletics facilities and play sports. Thus implementing sustainable practices in these facilities would bring greater environmental awareness and knowledge to a broad audience.

While St. Mary's has successfully incorporated many sustainable practices and initiatives into departments around campus, there are always more improvements that can be made, specifically within our athletics program. I have attempted to develop some sustainable recommendations that St. Mary's can consider for our athletics department and the ARC, and have divided these suggestions into three phases, from the short term and least costly, to longer term and more costly. While all the recommendations will need further discussion, the most complex and expensive approaches will require some debate and planning to become part of a more holistic and strategic sustainability plan for the college.

With more research and perseverance, I hope to continue this project and bring it to its full potential, with my main goal being to have some of the projects implemented and to set the stage for consideration of others. Because the first step of starting up new practices is always the most difficult, in the future I intend to take personal responsibility for getting these practices underway.

Recommendations

Further advancement of this project would be a great addition to the sustainable practices already in place at St. Mary's. If other students wish to continue with this project, the first place I would start would be to create a PSA for the athletics department which could be put up on the website or displayed on TV monitors. While an idea I originally wanted to complete myself, I lacked the appropriate time to initiate and complete this process in a successful manner. It is important to make a PSA for the ARC reminding students about the importance of turning off lights and recycling plastic bottles and trash within the ARC and in general. Using the mascot, Solomon the Seahawk, to promote these ideas will add a fun aspect to what some might view as a boring or unimportant topic.

Additionally, it would be fantastic if future students could develop a sustainable practices guide like I originally intended, for daily and weekly practices. For this part, it would be vital to hold focus groups or interviews with student athletes or ARC staff about their daily experiences in the gym and on teams. Through these methods it would be easier to identify what practices are currently upheld and where there is room for sustainable improvement. Furthermore, if addressing long term or large scale changes that should be made within the ARC, it might be best for students to come in with one well developed idea, instead of

multiple suggestions. This would make the athletics administrators more prone to take the idea seriously.

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