

Appendix A: A Conservation Plan for McPherson College

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INTRODUCTION

Educational institutions can teach many lessons inside and outside the classroom. The means by which most educational institutions are managed and kept provide an environmental paradigm of waste and natural domination to its students. This paradigm becomes a lifelong lesson that most people follow. Consequently, it is this way of life, which leads to a negative impact on the environment as well as environmental problems (eg: excessive energy use, water use, and waste disposal/generation.)

McPherson College is no exception to this trend. This paradigm of waste and natural domination can be seen in the decisions and actions of students, faculty, and staff. Because this attitude dictates people's actions towards God's creation, a church related college should encourage environmentally "friendly" actions. In Genesis Chapter 2 vs. 15 God asked his people to be stewards of the land, by protecting it and using it wisely (Holy Bible, 1995). Currently, however, it can be seen that McPherson College's actions do not coincide with this request and therefore the college is having a negative impact on the environment as well as teaching the college community life lessons that worsen this impact.

In order to adjust the impact that the college has on the environment as well as install an environmentally aware paradigm in the college community, certain policies have to be adopted and practiced. For my senior project, therefore, I have analyzed McPherson College's impact on the environment and have created an institutional conservation plan.

Goal

To ameliorate the current McPherson College environmental impact by implementing cost effective policies.

Problem Statement: Energy

Energy has become one of the most basic of human needs in the technological era. It is not just an end in itself but it is a means to obtain many ends. Energy is needed to heat and air-condition buildings, to heat water, to power engines, and to generate electricity for everyday uses. According to Harrison and Pearce, global consumption of commercial energy has risen more than fourfold over the past 50 years (2000a). There was once concern that energy sources from fossil fuels would run out. This fear, however, has been replaced by the concern that the continuing demand for energy will cause the global climate to change. Carbon-containing fuels emit

carbon dioxide, and carbon dioxide is considered a greenhouse gas, which is contributing to Global Warming (Harrison and Pearce, 2000a).

McPherson College's actions have attributed to the environmental problems concerning energy use. The institution has a tendency to leave the lights on in dorm rooms, lobbies, kitchens, bathrooms, classrooms and offices when not being utilized (Cripe, 2003). Transporting food to the college and the amount of driving conducted by the college has environmental consequences. According to the Office of Brethren Witness pamphlet, Save the Earth, every mile someone does not drive keeps a pound of carbon dioxide out of the atmosphere (2003).

In order to address the college's wasteful energy use, I propose the following:

Short-term

1. Resident Assistants will turn off unused lights and televisions.

I propose that when Resident Assistants make hourly rounds, they turn off lights and televisions in lobbies.

Cost Benefit Analysis

The college will save energy and money on electricity at no additional cost.

2. Switch to compact fluorescent/low wattage light bulbs.

I propose that the college replace all incandescent light bulbs with compact fluorescent/low wattage light bulbs. This switch should occur in the light fixtures in dorm rooms, bathrooms, hallways, kitchens, and lobbies. The same would occur in the classrooms, offices, hallways, and bathrooms in other buildings including the necessary lighting for the cafeteria. The fixtures outside used for security purposes would also be replaced with fluorescent/low wattage light bulbs.

Cost Benefit Analysis

It will take the college an initial investment of approximately \$4.00 a light bulb. The college, however, will save \$67 on energy costs per light bulb over its lifetime (Earth Day Network, 2001).

3. Provide a weekly shuttle to Wal-Mart and Dillons, as well as to Wichita and Kansas City Airports during holiday travel.

I propose that Facilities Management organize this shuttle service. It will be available free for students for weekly trips to Dillons and Wal-Mart, with additional locations and trips if there is a demand. Several shuttles will take students to Wichita and Kansas City Airports during holiday travel.

Cost Benefit Analysis

Benefits for providing this shuttle include: building a community through carpooling and reducing the demand for a vehicle. This policy asks the college to cover the cost of a driver, van, maintenance, and gas.

4. Place energy saving stickers on light switches.

I propose that the graphic design program design brightly colored, attention-grabbing stickers that will be printed in-house. The stickers will be placed in bathrooms, classrooms, offices, kitchens, and in every dorm room in the appropriate buildings.

Cost Benefit Analysis

Paper and ink will be the only cost incurred. The benefit will be a decrease in the McPherson College energy bill.

5. Use natural lighting in the cafeteria for breakfast and lunch.

I propose that the lights in the cafeteria be turned off for breakfast and lunch. The large windows in the cafeteria provide a sufficient amount of natural daylight.

Cost Benefit Analysis

The cafeteria has large windows allowing the use of natural lighting, reducing the institution's energy bill. Since the lights can be turned off manually at the generator by a cafeteria worker, there are no additional costs for the college to adopt this policy. Additional savings will be seen in the life of the existing light bulbs and other equipment.

6. Promote that the college negotiates locally grown produce and other food items in its contract with Sedexho Marriott.

I propose that the college negotiate with Sedexho Marriott (food services) to buy local produce and other food items that are either grown and/or produced in McPherson, McPherson County, and the State of Kansas.

Cost Benefit Analysis

The college will save money on transportation costs, and local markets will benefit.

7. Promote energy saving ideas to students, faculty, and staff through educational programs.

I propose that the college adopt the promotion of energy saving ideas to students, faculty, and staff. This will be conducted through dorm meetings, Freshman Seminar, educational programs, convocation presentations, and campus wide emails.

Cost Benefit Analysis

It will cost nothing to implement these educational programs; yet will save money wasted on electrical purposes.

Long-term

1. Work with an environmental consulting firm to plan and implement an energy and money saving system.

I propose that college hire an environmental consulting firm to plan and implement an energy saving system that will include motion sensors and solar power panels. Because this will entail changing electrical wiring this policy is considered a long-term goal.

Cost Benefit Analysis

The college will protect the environment while at the same time save money in the long term.

2. Adopt an energy eco-efficient building and renovation policy.

I propose that the college adopt an energy eco-efficient building and renovation policy. William McDonough and Partners will be contacted to create and apply energy saving plans for any new building or renovation (McDonough and Braungart, 2002).

Cost Benefit Analysis

Since altering the heating and cooling system in already existing dorms is not efficient, when new buildings are constructed or renovated the new systems will be installed and implemented. Although the initial outlay may be higher, the savings in energy and water costs will be seen over time.

Problem Statement: Water

Water is the most important finite resource because humans cannot survive without it. Less than 1% of freshwater is available for human use even though 71% of the earth's surface is covered by water. Water is unequally distributed throughout the World; consequently, water can be very difficult to acquire for some people. Water tables are falling on every continent and withdrawals from rivers and underground reserves have grown by 2.5-3%

annually. The situation is predicted to become grimmer as the quality of water decreases due to contamination (Harrison and Pearce, 2000b).

It costs McPherson College an average of \$33,019.54 a year for current water practices (Cripe, 2003). The majority of this water is used for irrigation purposes on campus. Fescue grass requires a large amount of water and maintenance. In addition, the college has had a tendency to waste water by over watering, water when raining, or windy. Water is also demanded for shower use. In general, students take multiple showers a day for an extended amount of time. The college wastes water by not fixing leaking faucets and showerheads immediately after they break. Faucets and showerheads leak for months before they are fixed (Cripe, 2003).

In order to address the college's wasteful water use, I propose the following:

Short-term

1. Promote water saving tips and ideas to students, faculty, and staff through educational programs.

See Energy/Short-term/7 for proposal and cost benefit analysis.

2. Manually turn on irrigation system when needed and turn off when raining and/or windy.

I propose that the campus switch to a manual irrigation system. The ground maintenance crew can turn the sprinklers on and off when needed, controlling how much and when water is used for landscape purposes.

Cost Benefit Analysis

The college will decrease water usage during non-needed times, therefore, reducing the cost of the college's water use. With little effort and cost, the college will save money and water.

3. Fix leaks in showerheads and faucets after they begin leaking or break.

I propose that the college's Facility Management staff fix leaky showerheads and faucets in the bathroom promptly after they are reported. Cleaning staff will be responsible for reporting leaks promptly.

Cost Benefit Analysis

The college will save money, yet the cost will be minimal to Facilities Management.

Long-term

1. Switch to natural landscaping by using natural vegetation.

I propose that the college adopt a plan to switch to natural vegetation landscaping. This will include removing fescue grass and

replacing it with natural prairie short grasses.

Cost Benefit Analysis

Prairie short grasses will reduce the amount of time spent by Facilities Management to cut and manicure the lawn. Consequently, water and energy costs will decrease.

2. Purchase new water-saving washing machines.

I propose that when new washing machines are needed, the college will purchase new water-saving washing machines.

Cost Benefit Analysis

Currently it may be too expensive to switch all the washing machines to water-saving washing machines but the change can occur gradually when old ones need replacing. By switching gradually the benefit of water-saving washing machines will be greater than the added cost. The college will save money and water.

3. Adopt a water eco-efficient building and renovation policy.

See Energy/Long-term/2 for proposal and cost benefit analysis

Problem Statement: Waste

Waste is an inevitable by-product of most human activities. As the global population has grown, the amount of waste generated has increased.

According to The Recyclers Handbook, the average American throws away 3.5 pounds of trash a day (1990). Currently there are four options for trash disposal: (1) Landfills- 80% of all trash, (2) Incinerators- 10% of municipal refuse is burned, (3) Transfer Stations- where trash is held before put in landfills, and (4) Processing Plants- recycling (The Recycler's Handbook, 1990). Recycling has become a technological fix in order to deal with the waste disposal issue. Even though it is helping, recycling is not the answer. The answer lies within the amount of waste generated.

McPherson College pays an average of \$10,864.92 a year for waste disposal. The college community throws away clothes, food, paper, and other items that could be recycled, reused, and/or composted. Therefore, the institution contributes to landfill problems. The campus does not buy recycled office paper or use paper products. Polystyrene (styrofoam) products are used in the cafeteria and Dog House. Polystyrene is made up of material that does not decompose.

In order to address the college's wasteful generation and disposal trends, I propose the following:

*Short-term***1. Adopt a recycling program on campus.**

I propose that every building have a separate receptacle for five recyclable items (paper, aluminum, glass, newspaper, and plastic bottles) and that they be placed in a convenient location. The college will contact John Hawk at McPherson Area Solid Waste Utility in order to rent a trailer with places to dispose of the five recyclable articles. This trailer will be placed by the cardboard receptacle besides Facilities Management and the recycling goods will be placed in them. The trailer will be delivered to the recycling center when full. A committee of students, faculty, and staff will work together to organize and run the recycling program. This committee will also promote the recycling center by advertising it throughout campus.

Cost Benefit Analysis

McPherson College pays an average of \$10,864.92 for trash pickup/disposal a year. Implementing a recycling program will easily cut this amount in half; therefore, this will save money.

2. Sponsor a bi-annual college and community yard sale.

I propose that the college host a yard sale in May and September to reuse items that are no longer wanted. It will include both the college and town communities.

Cost Benefit Analysis

The cost is nothing to implement, and the current disposal fee will decrease.

3. Sponsor a McPherson College Swap.

I propose that a McPherson College Swap be held year round. Students will swap clothes with each other in the dorm lobbies or in an unused dorm room.

Cost Benefit Analysis

Having the McPherson College Swap will reduce the amount of clothes that are thrown away, thus saving landfill space. McPherson College's disposal fee will decrease while students are taught to reuse by lessening the amount of trash thrown away.

4. Promote recycling and consumption reduction to students, faculty, and staff through educational programs.

See Energy/Short-term/7 for proposal and cost benefit analysis.

5. Purchase recycled office paper.

I propose that the college buy recycled office

paper. The college will contact an environmentally conscious organization (e.g.: Pennsylvania Resources Council) for a complete list of brand name recycled products.

Cost Benefit Analysis

The price of recycled paper may vary from virgin paper depending on the type of paper demanded. The college, therefore, needs to compare prices among competitors and find the company that is the least expensive.

6. Sell recycled notebooks in bookstore.

I propose that before all paper is sent to a recycling center, some will be collected to make recycled notebooks. The clean side of the paper can be collated into a notebook and sold in the bookstore. Once the notebook has been completely used, they can be taken apart and put in the paper receptacles.

Cost Benefit Analysis

A club, committee, and/or SGA will use this project as a fundraiser and will cost the college nothing.

7. Compost food and yard waste.

I propose that the college initiate an on-campus composting program with the help of the McPherson Area Solid Waste Utility. Unused food from the cafeteria will be collected in a composting pile. After decomposing, this waste will be applied as fertilizer. A pile for yard waste will also be started. This waste will be taken to the McPherson Area Solid Waste Utility to be chipped and shredded. The college will go and collect the necessary amount of needed mulch for fertilizer.

Cost Benefit Analysis

The college will save money on disposal fees and fertilizer costs. The only cost incurred will be transportation.

8. Purchase paper products for the cafeteria and Dog House.

I propose that the college switch to paper products for carryout purposes.

Cost Benefit Analysis

The benefits in this policy center around the environmental ones since the price of paper products vary.

Summary

For each proposal above, I have given the basic cost benefit analysis as it pertains to time and money. In fact, 20 of the 23 proposals actually save McPherson College money. However, the main focus of my research and proposal continues to be the

stewardship of our resources. To understand more fully the implications of the proposed changes on our environment, consider the following: Replacing one incandescent light bulb with an energy saving compact fluorescent bulb means that 1,000 pounds less carbon dioxide will be emitted into the atmosphere (Earth Day Network, 2001). Every mile someone does not drive keeps one pound of carbon dioxide out of the atmosphere (The Brethren Witness Office, 2003). Instilling environmental ethics on over 350 students places the practices of McPherson College out into the world. Repairing a single dripping faucet can save hundreds and into the thousands of gallons per year (The ABC'S of Water Conservation, 1999). Water saving washing machines saves 20 gallons of water per load as well as energy costs of heating extra water (Arizona Department of Water Resources, 2002). At McPherson College alone, it is estimated that 64,000 gallons of water can be saved per month! Switching from polystyrene products to paper products for food service decreases the amount of non-biodegradable material in landfills. Making the proposed changes saves McPherson College money, instills a policy of stewardship in its students and, most importantly, protects our environment and resources.

Conclusion

McPherson College has an obligation to lessen its impact on the environment because it is an educational institution and is affiliated with the Church of the Brethren. Educational institutions teach students what actions are acceptable by the way the institution is managed. By providing a recycling center on campus, for example, students will learn the importance of recycling. These lessons will impact students' actions towards the environment for the rest of their lives. As McPherson College is affiliated with the Church of the Brethren it has an obligation to care for God's creation. The land can still be used but the college must not have a negative impact on it. Change is a very disturbing process that can be very intimidating. At times it requires time and money. It may seem easier to just continue life as normal, but in the case of McPherson College's environmental impact, the time has come to accept the challenge of implementing change.

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