

Student Work on Display
BIO140 Carbon Footprint Project

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The McKillop Library Waste Stream

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The McKillop Library Waste Stream

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Introduction

The McKillop Library at Salve Regina University is a wonderful asset to its students, with a tremendous amount of resources available to them. However, these resources come at an environmental cost because more resources are being used than is realized and we, as a University, can start with seemingly small things in order to make a greater impact in the future. When it comes to being environmentally friendly there are a few aspects that could be focused on in order to reduce the amount of carbon emissions and waste that is being produced by the library. Carbon emissions are the leading cause of climate change, and through recycling we can lower the amount of carbon the library is producing (Cunningham & Cunningham, 2007). For example, although the amount of waste may not contribute as much to carbon emissions as heating or lighting collectively would, if recycling and re-using materials became more of a common procedure in library, there is little doubt that it would be more environmentally friendly.

Our objectives are to work on the amount of solid waste being produced by the library. We talked to Dawn Emsellem to find out the amount of ink cartridges, #7 plastic DVD cases, book covers, bottles and cans, and packaging materials that were being discarded. Our main methods of reducing this number is to refill ink cartridges or send them back to the supplier, switch to an online movie provider to keep from throwing away the DVD cases, keeping track of the number of books being thrown away, offer more recycling bins for cans and bottles so that they are not being thrown away, and reusing packaging materials. We found that the number of items being thrown away was mostly an estimate, and we would suggest to the library to keep better track of this.

In particular we explore how the McKillop Library might be able to reduce a large amount of its waste through the recycling of #7 plastic, packaging materials, hard cover books, and plastic bottles and other waste that has been brought in by students. Currently practices include throwing away #7 plastics, and since recycling bin coverage is low, there are a lot of recyclable materials being thrown away. Packaging materials and hard book covers are also being thrown away without other options being pursued. Once there is an effort being made to concentrate on the smaller aspects of waste in the library, there will be an improvement in the amount of things being conserved.

Ink Cartridges

STATISTICS – Currently, McKillop Library simply replaces the ink cartridge with a new one when they run out.

With this routine, the costs of ink cartridges to the library alone are roughly \$10,000 per year; \$4,000 covering the first floor printers and \$6,000 covering the second floor. What is the environmental impact of this?

PLAN OF ACTION – The simple and most effective alternative to this issue is to just refill the ink cartridges once they are empty. This would cut the costs of ink nearly 50-80 percent as well as reduce the amount of plastic used to hold the ink.

An additional method to actually reduce the amount of ink used in the library is to cut back on handouts, posters, and printing of papers. A solid alternative for this is to make it a school policy that all papers be submitted through email and all handouts that teachers would like to present in class should be presented in a power-point presentation of some format, having the students take notes. It was recorded that in fall of year 2007-2008, the costs in paper alone was nearly \$4,000. Cutting back on the amount of ink used in the library would directly result in the reduction of paper consumption, which would overall better the carbon use the library projects.

DVD cases

STATISTICS – When Dawn Emsellem, an employee at the McKillop library, was asked about the trouble with plastic number seven these statistics and strategies were given. From July 1 2007 to June 30 2008, the library received 600 DVD cases. It is predicted that each year this number will stay the same. Last summer the library switched to a Red Tag security system that locks the DVD cases. When a DVD is received the case is taken off and thrown away and the disc is put into the special Red Tag case. A Red Tag case has a special slot in it for holding a Red Tag lock. This locks the DVD case close, making it practically unfeasible for the user to remove the disc from the case without damaging the disc or case. The library has special unlocking devices at the circulation desk. This is a great way to keep discs secure in the cases. The switch to the new system required the disposal of 2,400 plastic DVD cases. While the switch was taking place the library staff did ask if the cases could be recycled, but the company that handles recycling for Salve would not accept them.

PLAN OF ACTION - It would be ideal if the library could recycle the original DVD cases while putting the disc into the Red Tag case, or alternative case. Unfortunately, DVD cases are made from a very hard to recycle plastic. Plastic number seven is extremely difficult to recycle. These plastics are hard and generally see through. Extensive research

has been made to see if anywhere close by would recycle this plastic. One result found is that consumers can return items to the product manufacturers to avoid contributing to the local waste stream, but putting the burden on the makers to recycle or dispose of the items properly. If the library were to recycle the number seven plastic DVD cases then the waste stream would be reduced. Another alternative would be to make movies available in a different way. Instead of ordering the DVDs in their cases, the library could work towards acquiring them in different packaging. One way that this could be done is by renting movies through the Netflix system, or any other DVD leasing organization. In this case, the DVDs are sent in a reusable paper packages. If this process is not feasible for the library, it might be possible that the library could make it accessible for students to watch movies online through their My Salve username. This would cut down on the DVD cases, packaging, and energy to send them back and forth. If either of these processes is used then it will be able to reduce the carbon footprint of the library by eliminating the use of plastic number seven DVD cases.

Packaging Materials

STATISTICS – After speaking with Dawn Emsellem, we were able to see just how much packaging material is being discarded. She provided the numbers for just how much waste is being produced, and exactly which parts of the packaging were being thrown away. Currently, the library recycles about twenty cardboard boxes per week, and if there is paper in the boxes that are being received then that is also recycled. Any type of foam packaging materials or plastic that does not have a number on it has to be thrown away, as does bubble wrap. About 2,000 plastic wrappers are thrown away each year in the library, which is a large amount of plastic filling the landfills. Most padded envelopes are made with recycled paper, and these can be recycled. The impact of this is that the parts of the packaging materials that are being discarded instead of recycled are taking up a lot of space, and since none of it is biodegradable it is adding to landfills and contributing to a larger amount of carbon production. Currently, the library does not buy any of these, but it would be a good idea to look into this because there are companies that produce them.

PLAN OF ACTION - Disposing of packaging materials is one of the minor problems in the library. We can focus on recycling cardboard and, wherever possible, finding alternatives to throwing away plastic and Styrofoam. The latter two types of packaging materials are a little bit more difficult to find alternative disposal methods for. The most difficult part of the packaging materials to recycle would be the foam peanuts because they are made from non-biodegradable materials. These can be donated to packaging companies who can reuse them, or they can be reused

for the library's own packages. Even though the library cannot control the materials being received in the packages, the ones that they use can include these recycled or biodegradable peanuts.

Book Waste

STATISTICS = What happens when books become outdated, obsolete, or water, insect or humidity damaged? In this study we evaluate several alternative methods: throwaway to deposit in a landfill, recycle the paper portion of the books, donate the books, and hold an annual book sale for the students and local communities. The number of discarded books is not fully known because books that are donated that are too old or are in poor condition are thrown away and not counted. The library does however count all of the books it takes off the stacks. On average about 2000 books are thrown away each year, although the library does not keep track of how many of each type. Paperbacks are recycled but for hard covers books the pages are taken out and recycled but the covers must be thrown out as waste. How can the amount of waste from discarded waste be lessened?

PLAN OF ACTION- Here are some methods for the reduction of book waste. Donating books to the Salvation Army or another organization if they are in good condition would be a solution, especially if it helps the community. Holding a book sale to get rid of books the library does not want to use, and recycling donated books and starting to recycle them as well as keeping track of the hard covers being thrown away would also be another option. Also, starting to keep track of how many of the discarded books are hardcover so the waste can be measured needs to be started. Unfortunately for the hard covers that must be discarded due to poor conditions, there is no alternative except the landfill or incinerator.

Cans and Bottles

A large part of general recycling at the library includes the proper disposal of bottles and cans. Although this may seem like a small part of waste in the long run it can have a large impact on the environment and making sure that the most effective ways to reduce this waste are in use is extremely important. The question: How to reduce the waste of bottles and Cans?

Methods- Through going through the trash bins and the commingled recycled bins on all the floors of the library, it was discovered how many students are actually recycling and what percentage of cans and bottles are being thrown in the trash. Although it must be taken into account that much of the trash and commingled recyclables were thrown

out before we had the ability to go through them and analyze the numbers. Nevertheless, we were able to come up with a basic idea of the recycling of cans and bottles in the library.

Results - On the first floor of the library there were 28 regular trash bins. In those trash bins one aluminum can was found as well as one plastic bottle. On the second and third floors, with 17 and 6 trash bins respectively, there were not any cans or bottles found in the regular trash. On the basement level there were 28 regular trash bins and 1 aluminum can was found not recycled.

Next we went through the commingled recycle bins to find out if students were recycling properly which is very important. If students are not recycling properly it defeats the purpose of recycling. On the first floor there were 8 commingled recycling bins. From these bins one container was contaminated with other product such as paper, and 12 containers were recycled properly. On the second and third floor there were not any commingled recycled bins found. On the basement level there was 1 recycling bin and 9 correctly recycled containers. It was also discovered that students are not recycling correctly. Students are throwing bottles, cans and coffee cups still filled with liquid. This causes contamination of the container. It cannot be recycled with liquid still in it and students are unaware of this. Also students are throwing water bottles in the bins with the cap still on. The cap of the water bottle cannot be recycled.

Plan of Action- First, to ensure a reduction in the waste of bottles and cans, there must be easily seen and numerous recycling bins around the library; Making it easy for students to distinguish them. There are not any recycle bins on the second and third floor and this should be fixed. There also must be a clear distinction between the recyclables such as glass, plastic and paper so as not to get them mixed up. The recycle bins should also be larger and color coded making it even easier for students to distinguish them, since the current problem is students throwing out recyclable materials in the regular trash. Other than making the bins much clearer and prominent and therefore more effective, it is also on part of the students to recycle so a heightened awareness of these issues should be integrated into the salve education.

Recommendations

The impact of this amount of waste is that it is all going straight to the landfills. It is taking up valuable space, and by using these alternative methods Salve Regina can slowly become more environmentally friendly.

Salve Regina always states that it is dedicated to the work of the Sisters of Mercy, and that contributing to the community is something that all students and faculty members should be dedicated to doing.

Overall, we have come to the conclusion that the library can explore many different ways of recycling various waste products. This will help in reducing the amount of waste produced and therefore the amount of carbon being released. Through finding alternative uses for DVD cases, recycling packaging materials, disposing of books, and increasing the recycling of cans and bottles the library will have a much more environmentally friendly impact. Through relatively small changes, McKillop Library can play a large role in leading the way to a greener campus.

Works Cited

"Recycling More Obscure Materials." The Consumer Recycling Guide: Recycling More Obscure Materials. Evergreen Industries. 13 Feb. 2009.

Whittle, Amy. "Importance of Recycling." Green Living. 13 July 2008. Glam Publisher Network. 13 Feb. 2009.

"Recycling and Climate Change." Waste Management Services. June 2007. Plant Operations Division @ The University of Michigan. 13 Feb. 2009.

Brown, Lester R. "Plan B 3.0: Mobilizing to Save Civilization". [Http://www.earth-policy.org/Books/PB3/pb3ch3.pdf](http://www.earth-policy.org/Books/PB3/pb3ch3.pdf).

Cunningham, William P., and Mary Ann Cunningham. Principles of Environmental Science. New York: McGraw-Hill Professional, 2008.

<http://www.thecrashpad.com/blogs/index.php/2008/04/12/number-7-plastic?blog=8>.

West, Larry. "Recycling Plastics." About.com 2009 16 Feb 2009
<<http://environment.about.com/od/earthtalkcolumns/a/recycleplastics.htm>>.