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The Paper Trail:

Paper Use and Disposal at the University of Rhode Island

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Senior Honors Project
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Introduction:

As recent and highly publicized data has shown, the climate of the earth is changing and doing so at an increasing pace. The cause of these changes has been linked with the amount of CO_2 in the Earth's atmosphere. Scientists have warned that if actions are not taken soon, an irreversible change is very likely to occur. There are many contributors to the increase in CO_2. In most cases, the amount of CO_2 emitted can be reduced with more sustainable practices of production and disposal. Although change in practices has begun to be seen in some institutions and individuals, it must occur at a widespread level. One of the easiest ways to reduce the amount of CO_2 is to reduce waste and recycle or to reuse the waste we create. The largest percentage of waste created is paper products. This subsequently comprises most of the material sent to landfills and incinerators.

Sustainability refers to the use of resources while at the same time managing and maintaining them, so they are available for future use. One of the oldest, easiest, and most well established sustainable practices is recycling. Many materials can currently be recycled. Some materials can be recycled for the same use, while other materials are used for a different purpose. For example, old newspapers can be remade into new newsprint, or old jeans can be made into insulation for homes. One of the biggest environmental benefits of recycling is the reduction in the amount of material that goes to landfills and incinerators. Landfills pose a problem to the environment, as the materials contained within them do not decompose, thus requiring the use of more and more land for waste materials.[1] Additional problems come from the fact that hazardous or toxic materials contained in the landfill can leach into water supplies.

Landfills are being filled quicker than ever by increasing populations. The Central Landfill in Johnston, where all non-recyclable waste materials in Rhode Island are disposed, is estimated to be at its capacity by 2013.[2] Close to fifty percent of material found in landfills is composed of paper products.[3] By recycling paper products, we can prevent them from entering the landfill. Although paper can only be recycled a certain number of times due to the nature of its fibers, it can still be used in other ways when it can no longer be reincarnated as paper. There are also many alternatives to using paper.

Paper Production:

Generally speaking, virgin paper, or paper that does not contain any recycled material, is produced from timber. After trees are harvested, they are debarked and chipped. The chips are then further broken down by mechanical and chemical means. After the wood is broken down into a pulp, impurities are removed and it is cleaned and bleached. Then, water is added so that the mixture can be sprayed onto screens where the water is allowed to drain off. Starch and fillers are added so that the paper can maintain its shape and smoothness. The sheet then moves over many rollers to finish the drying process.

Alternatively, recycled paper is produced from waste paper. The waste paper, like the wood used in virgin paper, is broken down into a pulp. Inks, dyes, and impurities are removed, and it is bleached. Then, just like virgin paper, the pulp mixture is sprayed onto screens so that the water can drain off. As before, fillers and starch are added before it moves to the rollers. Even though there is a limited number of times that paper can be recycled (because, as it is recycled and used, the paper fibers break down and become too short to form paper), the fibers can become useful for other purposes. For example, the

short fibers can be formed into pellets and used as a form of weed control in potted plants.[4]

There are several key differences between these two methods. Perhaps the most important is the amount of energy used when producing paper from wood, as this uses considerably more energy.[5] In addition to using more energy, natural resources such as trees, water, and fuels are used. Paper mills are also responsible for a significant amount of CO_2 emissions during production. Additionally, by cutting down trees, they increase the amount of CO_2, as those trees are no longer absorbing the gasses in the atmosphere.[6] Even if trees are harvested from a sustainable forest, it still takes a long time for new trees to grow. Paper can instead be made from waste paper as well as other, faster-growing materials, such as bamboo.

Use at the University of Rhode Island:

The source of paper at the University of Rhode Island is determined in part by the State Department of Purchasing. The state sets up a bid system in which companies can offer their services and special deals, then the State Department of Purchasing awards the contract to a company. The current purveyor for office supplies to the University of Rhode Island is W.B. Mason. W.B. Mason is a private company based in Brockton, Massachusetts. W.B. Mason's contract began in June of 2004, and is scheduled to expire in June of 2007.[7]

Individual departments at the University of Rhode Island are responsible for ordering the paper they need. Most of the paper observed around campus is W.B. Mason White Copy/Laser Paper. In my research, I attempted to find information concerning where W.B. Mason gets their paper from, but could not find any information. I tried to contact the company directly but my call was never returned. I found that W.B. Mason

White Copy/Laser Paper does not contain any recycled material, but was unable to find anything specific about the origin of the paper or the wood it is made from. Although the company sells recycled paper from other brands, the W.B. Mason brand is not available in recycled form.

The amount of paper purchased by the university is largely dependent on individual departmental needs and is therefore ordered accordingly in each department. There is, however, a certain amount of mandatory paper documents produced by the university. Documents such as transcripts, bills, and grade reports are printed and sent, even though the same information is available online through e-campus.

On-Campus Mail functions as standard mail does: to send documents from one person or department to another. For example, it is used to inform faculty and staff of upcoming events and other important information. For this project, I surveyed faculty and staff on the amount of notices and flyers they receive and how they dispose of them. Most respondents reported receiving between 6-10 notices per week. Additionally, an estimate of less than 25% of those messages were received in duplicate by email.[8]

Perhaps that biggest amount of paper on campus comes from student assignments. There are over 14,000 undergraduate and graduate students at the university, each of whom produces a great deal of paper waste from assignments. Many professors mandate that students turn in hard copies of assignments and distribute information on paper handouts, which in most cases are disposed of, once the class is finished.

Disposal at the University of Rhode Island:

Recycling is mandatory at the University of Rhode Island.[9] The University, as a state agency, recycles all materials currently able to be recycled in the state. This is required by Rhode Island state law.[10] Recyclable materials include mixed paper, plastic

one and two, aluminum, tin, steel, batteries, ink cartridges, and corrugated cardboard. Recycling is available all over campus, in dormitories, academic buildings, administrative buildings, as well as in several areas outside. There are three different colored bins that are used to separate the material: blue for plastic, glass, and metal, green for paper, and grey or black for trash. These bins are all supplied by the URI Recycling Department.

According to The University of Rhode Island Recycling Department, the following paper products can be recycled: white paper, colored paper, manila paper, envelopes, post-it notes, newspaper, magazines, paperback books, cardboard, paperboard, and phone books.

Once these materials are collected by individuals in the dormitories and custodial staff in academic and administrative buildings, they are put into "totes", which are rented to the school by a company called Cleanscape. Cleanscape was chosen by the Rhode Island Department of Purchasing to provide recycling removal. On a weekly or bi-weekly basis (depending on their location), Cleanscape empties the on-campus totes. There are 353 of these wheeled containers located around campus, 198 of which are for paper. From URI, the materials are taken to the Cleanscape facility in South Providence, where materials that the company considers of value are removed. The rest of the materials are then taken to the Material Recovery Center in Johnston, RI.[11]

Once materials arrive at the Material Recovery Center, they move up conveyors to the "first hand sort" station. Here, materials that are not paper are removed and sent to the appropriate area. The paper then moves to the "second hand sort" station. Here, the paper is sorted by type and moved into type-specific containers. Once a container is full,

it moves to a baler, where the material is compressed and bound into approximately one-ton packages. From here, the bales are sent to paper production plants.[12]

What other Campuses are doing:

Most of the other colleges and universities in Rhode Island, including Brown, Providence College, Rhode Island School of Design, Roger Williams University, and Salve Regina, have established recycling programs with mission statements. The goal of these institutions is to save money, reduce waste, and to use better environmental practices.

Brown University has the most intensive plan for recycling among all the colleges and universities in Rhode Island. Their resource recovery program is under the umbrella of Brown's sustainability initiative, "Brown Is Green".[13] Brown has a long history of environmental awareness, and there has been a recycling program in place at Brown since 1972.[14] Studies have found that most people are either unaware of available recycling, or they did not recycle if it was inconvenient.[1516] Brown makes a point of educating first-year students about the materials that can be recycled and where they can be disposed of.

The other schools in the state also have been working towards better recycling practices as well. Salve Regina recently expanded their recycling program to include all of its campus[17]. The Rhode Island School of Design has a recycling program in place; their statement on what can and cannot be recycled was updated in October of 2006.[18] There is also a recycling club at RISD, which meets bi-weekly and works to improve recycling.[19] In a similar vein, Roger Williams University has recently implemented a plan to double its paper recycling from an average of 50 tons per year to its goal of 100 tons a year.[20] Providence College is also striving to educate their university community and improve recycling programs.

Suggestions to the University:

There are several ways the University of Rhode Island can reduce the amount of paper waste it produces. Many of these actions could be implemented with little effort or cost. Although it is in university policy that you must recycle all materials that you are able to, there is no comprehensive plan which outlines how the university plans to deal with the trash of its ever-increasing population and how and where to dispose of it. Once the Central Landfill in Johnston reaches capacity and is capped, the cost of trash disposal will rise due to the increased distance the trash needs to be transported. The cost of recycling, however, will remain relatively the same, as the Rhode Island Resource Recovery Center is located in Johnston as well.

The university should make use of the technology already in place, thus allowing for a conversion from paper use to an electronic format. Such tools as e-Campus, WebCT, and Webmail could be used for the submission of papers, quizzes, exams, official notices, as well as for class discussions.

I have personally observed and heard from staff, faculty, and peers, that in many academic buildings around campus, custodial staff often take sorted recyclables (bottles, cans, and paper) and dispose of them all into the trash. Those faculty, staff, and students are taking the time to sort the materials, only to find that they are ultimately ending up in the landfill. I believe, with a small amount of extra training for the custodial staff, that this could be avoided.

I think the most important way to incite change at the University is through education. The university community is largely unaware of the options available. Students and faculty should be educated regarding recycling availability at the university and the implications of not recycling. Every freshman entering the University is required

to take URI101. If there were a discussion about sustainability and the small ways that individual students could contribute, the collective conscious of the university would be more aware. Having worked as a classroom media assistant, I know that much of the faculty wants technology to play a larger roll in their teaching but are unsure what the possibilities are, or where to start. With a small amount of instruction, professors are often much more excited about the possible roll of technology in their teaching.

My final suggestion to the university is making an "opt out" option for the many hardcopies, which are sent out in addition to electronic versions. Students receive a tuition bill as well as their grades for each semester; however, this information also appears on e-Campus. Faculty receives many notices and flyers, which could be emailed to them instead. By giving the option to "opt out" of receiving these paper flyers, less would be printed and less paper would be wasted for something that is predominantly read once (if at all), and then discarded.

Conclusions:

If the University were to reduce the amount of paper used, it could save a significant amount of money. Beyond the scope of the economic implications of reducing paper use at the University Rhode Island, the environmental implications of this change would be significant. Locally, it would mean less material being deposited in the Central Landfill. The global implications of this would mean a drastically decreased carbon footprint for the University and its individuals. It is the universities that must set an example and educate their students, the leaders for the future, about these implications that affect us all.

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