

Colby College Waste Audit Fall 2013

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Introduction

As students of Colby College, we wanted to examine our recycling habits in order to determine how efficient residents of the college are at recycling, and the margin by which we can improve these practices. A waste audit is a structured process used to determine the quantity and types of waste created by an organization or group. In order to measure and the amount and types of waste created by students at Colby College, we conducted a waste audit with trash and recycling bags collected from three dorms on campus. The information that is gathered in the process will be a measure of how well residents living in the three dorms recycle, which can also be used as an indicator of how well Colby students are recycling throughout all of the residence halls. With this information, we will then be able to identify the areas that are in need of improvement and further work towards reaching the most efficient recycling practices possible.

Methods

The waste audit was held on November 11, 2013 on Dana Lawn. Twenty-five trash and recycling bags were collected from AMS, East, and West dorms on campus and brought to the site. Tables were set up, each equipped with protective gear such as aprons, goggles, plastic gloves, and facemasks. Also provided at each table were buckets to sort the trash into and scales to weigh each bucket once the trash was collected. Between 1 and 3 PM, student volunteers came by to help sort through each bag of trash and place the items found into their respective bucket. The buckets were categorized as plastics #1-7, mixed paper, cardboard, redeemable aluminum and glass, non-redeemable B+C's, reusable items, compostable items, liquid waste, landfill waste, and electronic waste. Once each bag was sorted, each bucket was weighed on a scale and the weight for each category was recorded. The weight of the bucket was subtracted from each of the findings.

Results

Once the data was collected and set up in an Excel spreadsheet, a number of figures stood out. The waste diversion rate for the trash from the three dorms was 20.5%, indicating that 20.5% of all waste was diverted from the landfill. However, the potential diversion rate for the total weight was 76.6%. This indicates the percentage of waste and recyclables that could have been disposed of properly and sent to the correct disposal area.

It is important to note that 25% of the total trash weight was compostable items (Figure 1). This figure can be explained by the lack of a full (yet growing) composting system at Colby outside of the dining halls. If we discount the weight of compostable items, the potential diversion rate for the total weight is 69%. The weight percentages for all waste categories was recorded and reported below in Figure 1.

Type of Waste	Overall waste percentage (%)
Compostable items	25 %
Mixed paper	20%
Redeemable aluminum and glass	19%
Landfill waste	14%
Liquid waste	9%
Plastics #1-7	6%
Cardboard	3%
Reusable items	2%
Non-redeemable B+C's	1%

Figure 1: Overall waste percentage of different waste categories of total waste produced.

Once we understood the amount of waste, we wanted to understand where the opportunities were to improve recycling habits on campus. In Figure 2 below, labeled 'Misallocated Materials' we looked at the materials that were thrown into the trash, that could have been recycled. The results are telling.

Misallocated Materials			
Waste Type		Weight Misallocated (kg)	Portion of Waste Type
Plastics #1-7		5.708	100.0%
Mixed Paper		8.324	43.54%
Cardboard		3.074	100.0%
Redeemable Aluminum and Glass		9.363	52.96%
Non-redeemable B+C's		0.572	100.0%
Reusables		1.957	100.0%
Compostables		23.416	100.0%
Total of Misallocated Recyclable Material in Trash by Weight		53.527	72%
Total less compost of Misallocated in Trash by Weight		30.111	41%

Figure 2: Misallocated materials by waste stream from the waste audit.

In total, 72% of the material discarded in the trash was recyclable. If we discount the compostable materials in the trash, the figure falls to 41%. A number of waste streams including plastics #1-7, cardboard, and non-redeemable bottles and cans, were misallocated entirely. These waste types offer a good place to start for further educational programming as the data suggest that students do not understand which waste types can be recycled.

Discussion

The misallocated materials with the percentages close to 100% were plastics #1-7, cardboard and non-redeemable bottles and cans (Figure 2). The results for plastics and mixed paper, redeemable aluminum and glass have room for improvement, but demonstrate an understanding that these waste streams can be recycled. The results for landfill waste are expected. Plastics, mixed paper, and redeemable aluminum and glass have specific receptacles on each floor of every dorm with the intention that they are used.

A suggestion to improve the recycling rates of plastics, cardboard, bottles and cans and mixed paper is to install graphics of what to recycle and where. A quick identification of the item, like a bottle or empty snack box, as either recyclable or not could have large effects on these numbers. Also, there is a yellow bin to collect plastics in the laundry rooms of every dorm. These bins are not being used to collect the plastics perhaps because of their placement. A suggestion to increase the recycling of those types of plastics would be to install a more accessible yellow bin.

The other statistic to be addressed is the percentage of compostable items that are thrown out. Compostable items comprised 25% of what was thrown out. This includes food scraps and any napkin or paper towel products. While there is an existing composting program at Colby, it is student-dependent and the student's decision and responsibility to monitor their room compost bin. This program could be advertised more greatly for students in order for more of them to compost. Another suggestion is that the EcoReps take up this responsibility and manage compost bins for their dorms. This would require active EcoRep participation and lots of organization.

Besides food, a lot of what was compostable and being thrown out were paper towels. A lot of these paper towels come from the bathrooms. In order to make sure these paper items are being diverted to the composting facilities, composting could be implemented in the bathrooms in order to better capture this waste stream. This could be a custodian effort, or even simply the addition of a separate receptacle for non-paper waste in the bathrooms.

Overall, the findings from this waste audit showed that education on the disposal of plastic and mixed paper needs to be improved so that there is less paper and plastic being thrown into the landfill waste stream, as well as relocation of some of the recycling stations. Also, small efforts could be put into the composting program in order to reduce this number.