

Reducing Paper Usage at Smith College

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Abstract

Smith College, as an educational institution, uses a considerable amount of paper. A significant portion of this consumption, however, is unnecessary. This study focused on needless printing from computers. Based on the testimony of computer lab consultants, thousands of sheets of paper are wasted daily college-wide. Efforts to reduce paper usage at four other colleges were investigated. Smith College can adopt more sustainable paper use practices by installing computer printers with duplexing capabilities, charging for printing, educating students and staff about printing options, announcing events electronically, and purchasing copy paper with significant post-consumer content.

Introduction

The paper manufacturing industry has had a major impact on the environment. It uses four percent of the world's energy, making the industry the fifth largest energy consumer (Abramovitz & Mattoon, 1999). Ten kilowatts per hour is required to produce one ream of paper (Stein, 1997). Twenty percent of all wood harvested is used for making paper. The destruction of trees leads to soil erosion and species loss. Air pollutants such as nitrous oxide, sulfur oxide, and carbon dioxide are released during the paper making process, which contribute to acid rain and global warming. The bleaching process sends toxic chemicals like dioxins and chloroform into water supplies. The paper industry uses more water per ton of product than any other industry (Abramovitz & Mattoon, 1999). The transportation of lumber and finished paper products further contributes to pollution and energy consumption.

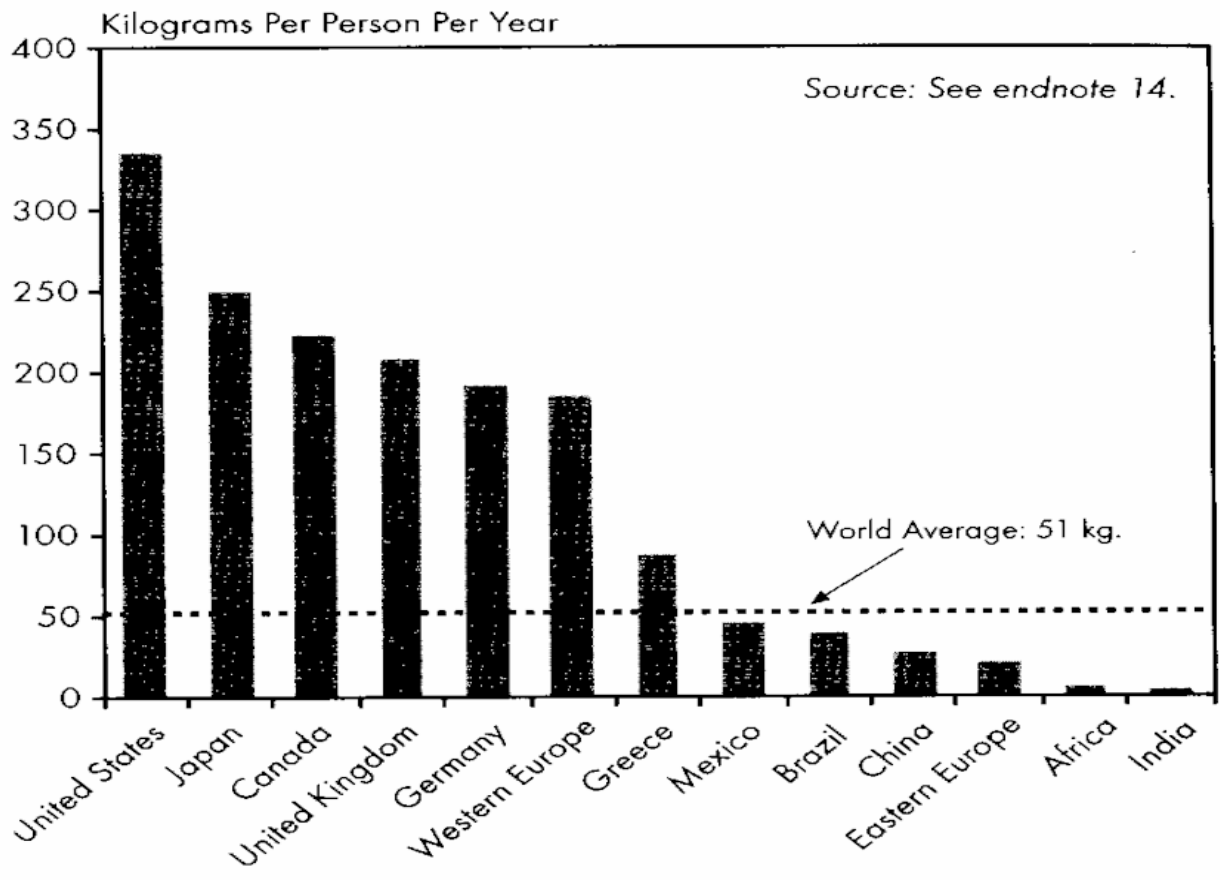
Worldwide paper consumption has risen steadily despite the increased availability of computers. In 1997, the world used 299 million tons of paper, which is six times the 1950 level. The United States leads all other countries in paper consumption (see Figure 1). Recycling efforts have caused growth in the contribution of recovered paper to the global fiber supply: from 20% in 1961 to 38% in 1997. Paper consumption, however, has increased so rapidly that it has overtaken gains made by recycling (Abramovitz & Mattoon, 1999).

The objectives of this study were to discover areas of unnecessary paper use at Smith College and to suggest alternatives for reducing paper use. Strategies employed by other colleges to reduce their paper use, have contributed to the recommendations herein that can help Smith College employ more sustainable paper use practices.

Methodology

To determine where most paper is used at Smith College, I obtained paper delivery figures for the past two years from Central Receiving and calculated usage per building. I entered this data into the Geographic Information System's campus map to provide a visual image of campus paper use patterns. I visited the computer labs that used the most paper and interviewed the lab consultants. They eagerly shared with me numerous stories of frivolous printing that they have witnessed.

I contacted Amherst College, Mount Holyoke College, Hampshire College, and Sacred Heart University to find out what efforts these institutions have implemented to reduce paper consumption on their campuses. I then considered the feasibility of some of



these practices for Smith. I also investigated recent efforts at Smith College to reduce paper waste.

Results

Last year Smith's Central Receiving Department delivered over 15 million sheets of unprinted paper to various buildings around campus (Table 1). These numbers do not include the significant amount of paper that was printed off-campus. For instance, 196,000 sheets of stationery were used by the college in fiscal year 2002. A report on paper usage compiled by Joanne McMullin's students in Environmental Science and Policy at Smith College estimates that each Smith students and staff use almost 5000 sheets of paper each year.

The distribution of paper delivered by Central Services can be seen in the campus map entitled "Paper Usage 2001-2003." The buildings with the highest levels of paper consumption were Central Services (8670 reams), College Hall (5780 reams), Seelye Hall (4913 reams), Clark Science Center (4634 reams), Neilson Library (4176 reams), and Wright Hall (3552 reams).

Central Services is a print shop on campus that does photocopying for competitive prices. There has recently been a good deal of attention paid to the amount of paper wasted on flyer distribution on campus. In honor of Earth Day, the Smith community was encouraged to abstain from distributing flyers during the week of April 21-26, 2003. Announcements were posted electronically, or could be publicized through sidewalk chalk messages, posters, or table tents. Since Gaia (a student organization), the

**Table 1: Paper Usage at Smith College from 3/1/02-3/1/03.
Unit = ream (500 sheets)**

ProductName	Units Sold	Sheets
Paper 3 Hole Drill White	86	43,000
Paper 8.5x11 Blue	142	71,000
Paper 8.5x11 Canary	257	128,500
Paper 8.5x11 Cherry	45	22,500
Paper 8.5x11 Goldenrod	70	35,000
Paper 8.5x11 Green	199	99,500
Paper 8.5x11 Orchid	84	42,000
Paper 8.5x11 Pink	73	36,500
Paper 8.5x11 Tan	31	15,500
Paper Computer Alt Green Bar SC-10	7	5600
Paper Computer White Letter Stock	25	67,500
Paper Copier 8.5x11	29,051	14,525,500
Paper Copier 8.5x14	122	61,000
Paper Generic Letterhead/Rolland	7	3500
Paper Strathmore 20# / Watermarked	6	3000
Paper Strathmore 24# / Watermarked	0	0
Paper Rolland Motif	34	17,000
Paper 11X17	22	11,000
Total		15,187,600

Source: Central Receiving, 03/26/03

Environmental Science and Policy Program, and MassPIRG are making progress on this issue, I didn't pursue it further.

Computer lab consultants eagerly shared stories with me about the frivolous printing practices of students. It is not rare, they said, for students to print the complete course catalogue or to print entire web sites filling hundreds of sheets of paper. In Neilson Library there are 17 printers available for public use, free of charge. Although signs are posted stating a 50-page limit on printing, many users print considerably more than that. For example, one day I noticed a 250-page document sitting unclaimed next to a printer. The printers in Young Science Library spit out a blank sheet or two at the end of each print job. These sheets are not put back in the printer, but are used as scrap paper. A lab consultant said that hundreds of sheets of paper are wasted by the end of each shift. If this is true for both shifts at the four major computer labs (Neilson, Seelye, Bass, and Wright), then approximately 1600 sheets of paper are wasted in computer labs daily at Smith.

One Smith student who printed copiously admitted she wouldn't hit the print button so quickly if she had to pay by the page. One professor posted all of his course's readings on Blackboard, an online tool for communication and distributing course materials. Unfortunately, the vast majority of students in his class printed out every page of it.

According to Janet Jourdain, Systems/Media Librarian, Amherst College installed a campus-wide printing control system called Pharos Uniprint three semesters ago. Amherst students pay \$.05 per page and non-Amherst users pay \$.10 per page. She was unable to supply me with "before and after" paper use data, but reports that the system has been well received and is running smoothly.

Mount Holyoke College has installed printers that can duplex, and the college has set that option as the default. Susan Rusiecki reports that jamming is not a problem on the newer printers (Hewlett Packard model 4100). Students are getting used to duplexing their papers and many professors allow students to submit their assignments on double-sided paper. Some printers at Smith are capable of duplexing; however, that option has been disabled for fear of paper jams.

Sacred Heart University in Fairfield, Connecticut, is striving to be a “paperless” campus. All students must purchase a wireless laptop computer. They are encouraged to send completed assignments to professors electronically. I contacted two current students who both spoke positively about the system. One student estimated that he sends in 80% of his written work electronically. He benefits from taking notes on his computer in class. The minor drawbacks the students mentioned were having to carry their computers around with them, recharging their laptops every 3.5-4 hours, and enduring occasional brief system crashes.

A student at Hampshire College conducted a study on the compatibility of paper containing 100% chlorine-free, post-consumer waste content with the college’s printers and copiers. The study found that little jamming occurred, so now Hampshire has a policy of buying this type of paper for campus-wide use.

Discussion

Clearly, students at Smith College use a considerable amount of paper unnecessarily. From testimonies of the computer lab consultants, I estimate that paper use could be reduced by three or more reams of paper daily if students were better informed about more appropriate printing practices. Information technology education during orientation week should inform students of practices such as previewing documents and copying and pasting online information into a Word file before printing.

Setting printers to duplex would substantially reduce paper use without significantly inconveniencing students. If only half of the sheets printed or copied at the college were double-sided, paper use would be reduced by 3,750,000 sheets. Most copiers at Smith are currently capable of duplexing, though “how to” signs would encourage the use of that option. All new printers should be duplex-capable. Cheryl Donaldson, Director of Desktop Technology Services, informed me on 4/30/03 that “both shared printers and personal laser printers will all be duplex-capable effective with the next purchase.” She will be encouraging the use of the option, as well. I propose setting the duplex option as the default. If a student needs to print on only one side, she can select that option.

To reduce further irresponsible printing, I recommend that Smith institute a charge per page printed, as Amherst College has. There could be a base amount of free sheets per semester before the charging begins. On May 1, 2003, Robert Davis, Director of Education Technology Services, informed me that Smith College will be instituting a pay-for-printing service next year. The printing fees will be debited to a student’s Campus Cash account. Library visitors can purchase a cash card to pay for printing there. Students will be allotted 30 free pages to cover printer errors.

Smith organizations should announce events electronically, as was done during Earth Week. According to Lindsey Watson, 2002-2003 Student Government Association President, Smith has purchased Resource 25, an online calendar. It should be available for campus-wide viewing next fall.

Finally, I propose that Smith College purchase paper with significant post-consumer content. The U.S. government uses paper with 30% post-consumer content. Smith College should do at least as well. Jim Hardy, Purchasing Manager, said the lowest bid he could get on recycled copy paper was \$23.00 per case of ten reams. Virgin paper costs \$20.50 for a case. However, if the recommendations above were instituted, less paper would need to be purchased and this would offset any additional cost per case.

If Smith College implements the above recommendations, I estimate that its paper consumption will be reduced by 8000 reams of paper per school year (7500 reams from duplexing plus 500 reams from reductions in unnecessary printing). At the current virgin paper price, this will save the college \$16,400. If recycled paper were purchased instead, the college will still save \$10,806.25. I am pleased to learn that several of the changes suggested here will be put into place for fall of 2003. Not only will Smith College save money, but it will become have more sustainable paper use practices for the long term.

References:

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Stein, K. (1997). Beyond Recycling: A Re-users Guide. Clear Light Publishers: Santa Fe, NM.

Paper Usage 2001-2003

