Composting Policy Brief: A Decentralized Solution to Composting

Part I: The Problem with Waste: A Brief Background (Melissa Streng)

We have a waste problem. In 2007, Americans generated 254 million tons of trash. Trash is one of the greatest producers of dangerous greenhouse gases, including methane and carbon dioxide, which leads to global warming. Landfills account for 34% of methane emission in the United States.[1] During the past decade, the waste problem began to flood the mainstream American consciousness, which led to the rapid development of recycling and community composting infrastructure, which have resulted in the current US composting rate. 85 million tons of our waste (1/3 of our waste) are currently composted or recycled, rather than being sent to the landfill. There are now 3510 operational community composting programs in the US[2]. While this figure has vastly increased during the past few years in the form of curbside recycling programs and grass clipping pick-up, the strides have been significantly less in the realms of food waste. While 1/3 of all waste is composted or recycled, 31.7 million tons of food scraps sent to the landfill on an annual basis, only 2.6% of which are composted [3].

This poses a significant problem, due to the particular composition of food waste. When food rots, it releases methane, a potent greenhouse gas which traps 23 times the amount of heat that carbon dioxide traps[1]. Methane is created in the landfill due to the anaerobic decomposition of the trash. Due to the lack of oxygen in the plastic and metal filled environment of the landfill, dangerous methane gases are produced. Thus, the landfill becomes a breeding ground for methane emissions. According to a 2004 study by the University of Arizona, if Americans cut their food waste in half, it would reduce the countries environmental impact by 25%[1].

In Oberlin, we also have a waste problem, as we struggle with the same waste problems that burden the country. While we have an effective curbside recycling program, we are not currently one of the 3510 communities who have taken the steps to expand their waste reduction through community composting infrastructure. This leads to question as to what steps we can take to begin to reduce the community's waste and to expand our community's composting.

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[1] Oliver.
[2] EPA 9
[3] EPA 7

Part II: Case Studies – Bryne Ulmschneider

Case 1: Composting Success in York and Markham in Ontario, Canada

Because the region of York and Markham in Ontario was exporting most of its waste to landfills in Michigan, the region began looking for a sustainable long term solution about 10 years ago. Today it boasts one of the most successful waste management programs. In 2007, they were able to divert over 70% of their waste from landfills, which includes a highly effective curbside composting system[4]. As far back in 2001, several years before their pilot composting program began, 1 in 5 people already composted in their backyards, and 90% of their populace thought waste management was important[5]. What factors have contributed to their success? This region has committed many resources to convincing the public that composting and waste management are necessary. They themselves attribute their success to a well-received marketing campaign[6]. Additionally, they maintain a good website with clear information about composting[7]. Clearly, a well-coordinated, well-educated public is a necessary component to building a composting infrastructure for a long term waste management solution.

Case 2: Numbers from Monroe, WI: What kind of investment would it take to build a composting infrastructure?

Monroe, WI has of about 10,000 people and demographically similar to Oberlin. Unlike Oberlin, it has some centralized composting. Monroe composted 417 of yard waste and leaf clippings from 3,900 households. For collection, they had a jeep, and a one person crew to collect yard waste and leaf clippings weekly from April to November. The total amount of capital they invested, for a wood chipper and paying for collection services was $16,098[8]. This demonstrates that even a very small amount of centralization still requires a fairly large investment of capital. This supports a small scale decentralized composting solution for a town the size of Oberlin.

Part III: Interviews: Oberlin Community and the Scale of a Composting System – Pete Sabo

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[4] http://www.ottawa.ca/residents/recycling_garbage/iwmmp/organics_en.html
[5] http://www.york.ca/Publications/News/2001/April+12,+2001,+Increasing+recycling+and+composting+efforts,+Region+adopts+three-stream+solid+waste+.htm
[6] http://www.york.ca/NR/exeres/BA528787-7266-4602-855E-0412AD9744EC.htm?NRMODE=Unpublished
[7] http://www.markham.ca/Markham/Departments/WstMgt/overview.htm
[8] EPA 8

One of the most challenging barriers to building a composting system is the size of the population source and the limited available resources for smaller community populations. Lorain County's population is estimated to be 8500, which is low in population density. Highly concentrated population density would require a large, centralized composting system, but smaller communities require a more nuanced, pragmatic, and cost-effective approach to composting in order to overcome the high initial capital costs. Ian Walker is a 2nd year at Oberlin College and has been researching composting systems for over a year finding different obstacles along his path as well as a documented history of failed composting attempts that fizzled out. Scale and price barriers stifled past efforts, Ian said, but recently he managed to find the right composting system. "The rocket composter is much cheaper than other systems on the market, it is also a system that is small enough to fit Oberlin's needs. Other in vessel systems are too large and so we would be purchasing unnecessary capacity." He described the past efforts' problems due to scale "before that the other systems were far too big and too expensive to make a reasonable case for them. It is very difficult to get anything about increasing composting on campus done which is evident from the fact that this proposal is based on one from 2003, which was born in 2001. Almost a decade and no forward momentum."

He found a tangible composting unit called the Rocket Composter which, "is much cheaper than other systems on the market, it is also a system that is small enough to fit Oberlin's needs. Other in vessel systems are too large and so we would be purchasing unnecessary capacity." He also just received the statistics from CDS's Waste audit, which was a 5-week campaign where post-consumer food waste was collected and weighed during lunch alone. Hopefully the answers he and CDS are looking for will be available soon according to Ian since, "The waste audit is now complete and we should be able to get a quote from the company in a couple weeks." Once we know whether the cost-benefit analysis is complete with CDS, we will know whether a decentralized community composting intiative could be combined with the CDS composter at Stevenson. We do know, however, that pursuing a large, expensive centralized composting system is not a practical solution for the size of the Oberlin Community, which is the key reason why we are proposing a decentralized, smaller-scale solution that combines the waste from the college as well as participating community members as the most cost-effective, feasible waste-reducing solution.

Part IV -Solution: Decentralized Composting Network - Stacia Thompson

Composting is simple to implement and provides environmental and economic benefits. Furthermore, composting creates a closed-loop system, where inputs become outputs, creating zero waste. Beyond reducing landfill waste by up to 23%[9], compost builds healthy soils by increasing moisture content, nutrients, and soil structure which is essential to life. Compost produces the most effective type of fertilizer, increasing agricultural yields and minimizing plant diseases and pests. Compost prevents soil erosion and removes solids, oil, and heavy metals from storm-water runoff.[10]

Unhampered by the current barriers to a centralized composting system, a decentralized network could immediately start diverting waste with a minimum investment in capital per person reached. Our goal is to set up a household vermicomposting network. Worm bins can be kept inside, which is practical and accessible for a wide range of people. On Earth Day, we will hold a composting workshop where bins, worms, and information packets will be distributed for free (costing us only eight dollars per person). We will advertise this workshop, highlighting the importance and logistics of composting, through church newsletters, *The Source*, WOBC, fliers, and an Oberlin composting website. This website will also include a composting forum where people such as farmers with excess manure, farmers in need of compost, residents with backyard composts, and those with composting questions can communicate and coordinate their efforts. Our third step will be to provide composting education to the local high school through a second vermicomposting workshop. While areas that generate large amounts of organic waste such as schools may require a centralized composting system, this workshop will increase awareness and interest in household vermicomposting, and could inspire a school composting system. These three steps will provide the infrastructure (knowledge, mode of communication, and materials) for a decentralized system to continue into the future.

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[9] Basic Information/ Composting/ US EPA.
[10] Environmental Benefits/ Composting/ US EPA.

Works Cited

1. “Municipal Solid Waste Generation, Recycling and Disposal in the US: Facts and Figures for 2007.” US Environmental Protection Agency. http://www.epa.gov/osw/nonhaz/municipal/msw99.htm
Oliver, Rachel. “All About: Food Waste.” CNN. 28 Jan 2008. http://www.cnn.com/2007/WORLD/asiapcf/09/24/food.leftovers/index.html#cnnSTCText.

2. “Waste Prevention Recycling and Composting Options: Lessons from 30 Communities.” US Environmental Protection Agency. http://www.epa.gov/osw/conserve/downloads/recy-com/index.htm

3. “Organics Q&A.” http://www.ottawa.ca/residents/recycling_garbage/iwmmp/organics_en.html

4. **“**Increasing recycling and composting efforts, Region adopts three-stream solid waste collection system” (2001) http://www.york.ca/Publications/News/2001/April+12,+2001,+Increasing+recycling+and+composting+efforts,+Region+adopts+three-stream+solid+waste+.htm

5. “York Region’s Waste Diversion Rate increases by 10%” (10 November 2005) http://www.york.ca/NR/exeres/BA528787-7266-4602-855E-0412AD9744EC.htm?NRMODE=Unpublished

6. Town of Markham Website http://www.markham.ca/Markham/Departments/WstMgt/overview.htm

7. Environmental Benefits/ Composting/ US EPA. (2008) http://www.epa.gov/osw/conserve/rrr/composting/benefits.htm

8. Basic Information. et al.