

**Material Waste Progress Report  
October 2009**



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The reduction of material waste and energy consumption through the Environmental Stewardship Initiative has had an impact on Michigan State University's environmental footprint. A systems approach identifies material inputs to the campus, the recycling and reuse of material, and material waste outputs from the campus. Outputs for material waste are measured in landfill volumes, and also upstream and downstream reductions in CO<sub>2</sub> emissions. The initiatives on campus are focused on change in three areas: inputs, reuse, and outputs.

Although the campus has been recycling for years, the last three years have heavily focused on creating consistent collection and enhancing education and communication on reducing material waste. As with energy reduction, behavior is a significant part of a successful waste reduction program. Individual, department, and unit decisions for purchasing, material use, trash, and recycling are all behavior driven. Environmentally friendly materials are more available. As the campus continues to use its resources wisely, it must also use resources in a way that reduces its environmental impact.

What follows is a progress report on changes made to reduce waste and the cumulative impact of those changes to campus.

### Material Waste

#### *Campus Progress:*

- **Outputs:** Campus landfill waste decreased by 14 percent from 2007–08 to 2008–09 for a reduction of 1,037 tons. This resulted in a landfill tipping fees savings of approximately \$53,032. The campus goal is to reduce landfill waste by 30 percent by 2015 from the baseline figure in 2006–07.
- **Reuse/Recycling:** The Environmental Stewardship Initiative identified five materials (white office paper, mixed paper, cardboard, newspapers, and plastics #1 and #2) to comprehensively recycle in all campus buildings. Since 2008 when the program was implemented, campus recycling volumes have increased by 22.6 percent, or 191 tons.

The MSU Surplus Store has also contributed to waste reduction through its reuse and resale program. In 2008–09, MSU Surplus sales were \$1.7 million. Nearly \$1 million of these revenues were returned to the departments as credits.

- **Inputs:** White office paper has been identified as a key indicator for materials brought into campus. Approximately 95 percent of all paper is purchased through MSU Purchasing.

White paper purchase volumes decreased by 15.9 percent from 2007–08 to 2008–09. This is a reduction of 72 tons of paper, or 28,616 reams, removed from the waste stream for an estimated cost savings of \$115,000.

Water bottle purchases, another major input, have decreased by 32.5 percent from 2007–08 to 2008–09. This is a reduction of 363,050 bottles. This reduction could be attributed to the Nalgene bottle distribution program. All on-campus students living in the residence halls receive a 16-ounce reusable bottle. Coupled with this initiative, the residence halls have installed 14 reverse osmosis machines where students may refill these bottles free of charge.

## Material Waste Progress by Efforts

### 1. Five Materials—Increased Recycling

- White office paper recycling increased by 15.3 percent from 2007–08 to 2008–09. This is 201 tons, or 80,360 reams, of paper.
- Mixed office paper recycling increased by 12.2 percent from 2007–08 to 2008–09. This is 52 tons, or 193,600 reams, of paper.
- Cardboard recycling increased by six percent from 2007–08 to 2008–09. This is 45 tons of cardboard.
- Plastics #1 and #2 (clear plastics, such as water bottles, milk/juice jugs, and detergent bottles) recycling increased by 56.9 percent from 2007–08 to 2008–09. This is an increase of 16 tons of plastic recycling.

The bottled water purchase count was reduced from 1,114,910 water bottles in 2007–08 to 751,860 bottles in 2008–09 for a reduction of 363,050 bottles. The reduction of plastic inputs—coupled with the increase of plastic recycling—shows that MSU is reducing environmental impact upstream (inputs) and downstream (outputs).

- Newspaper recycling decreased by 11.1 percent from 2007–08 to 2008–09. The decrease is likely the result of the national trend of lower newspaper circulation and increased use of online news media. Despite the decrease in the recycling rate, 28 tons of newspapers were recycled.

Note: Reductions in recycling are not always a bad indicator. If fewer materials are brought onto campus and positive recycling behaviors remain, the campus should see a reduction in recycled materials over time.

### 2. Expansion of the Recycling Program—Phase II

- In January 2010, the campus will expand its comprehensive recycling program by collecting plastics #3–#7 (plastic films, cups, and rigid plastic, such as Gladware), metals (soup cans and nonreturnable beverage cans), and boxboard (cereal and cracker boxes) and enhancing toner cartridge recycling. Although MSU had the ability to recycle some of these materials in previous years, the capacity to accept these materials on a campus wide scale was not available until the new recycling facility opened. The new facility provides the space and capacity to manage and process three times the volume of the old facility.

### 3. Construction Waste

- In 2008–09, five construction projects were identified for construction waste recycling. A total of 42,559 tons of construction waste material was collected. Of this, 40,273 tons of construction waste were recycled or reused with 2,286 tons sent to a landfill, resulting in a recycling rate of 94 percent.

### 4. Behaviors

- **Students:**  
The Nalgene bottle distribution program mentioned previously is an example of adding convenience to change behavior. In addition to reusable bottles, 17,000 recycling bags are distributed in the fall to students living on campus to encourage recycling.
- **Environmental Stewards:**  
In April 2008, the campus launched an environmental steward program. This program required units and departments to identify an “advocate” for their area to assist in educating and implementing behavior changes.

**Results:** More than 600 stewards have been identified. Stewards receive monthly building reports reflecting changes in their building’s energy consumption, recycling, and reduction in landfill waste.

- **New Initiative—MSU Green Certification Program:**  
The Green Certification Program, which began in October 2009, is designed to recognize, assist, and promote units that are taking steps toward reducing their environmental footprint. Departments and on-campus students

complete a self-assessment using a checklist of MSU-identified "best practices" in purchasing, waste reduction, energy conservation, and communication. Units and individuals practicing 70 percent or more of the behaviors will earn MSU Green Certification. Buildings in which all units are certified will receive MSU Green Certified Building designation.

#### **5. Pack Up, Pitch In**

- Pack Up, Pitch In is a program that seeks to reuse and recycle materials from student rooms during move out. Clothing and food are also collected for local charitable organizations. From 2008 to 2009, there was a 35 percent reduction of waste going to a landfill as a result of this program. Pack Up, Pitch In increased clothing collection by 84 percent over the previous year by donating 28,000 pounds to charitable organizations. Electronics recycling increased by 261 percent, with a total of 5,600 pounds of electronics recycled in 2009.

#### **6. E-Waste**

- Electronic waste for the campus is collected through the MSU Surplus Store. E-waste is considered to be any piece of equipment with a cord. Most electronic waste can be reused or recycled. From 2007–08 to 2008–09, e-waste collection increased by 41 percent for a total of 131,400 pounds.

#### **7. Surplus**

- In 2008–09, MSU Surplus sales were \$1.7 million. Nearly \$1 million of those revenues were returned to the departments as credit. With the new MSU Surplus Store, it is anticipated that these sales will increase. As part of the MSU Business Procedures and Manual, departments and units are required to resell equipment or items through the MSU Surplus Store.

#### **8. Exterior Recycling Containers**

- Outside recycling stations and containers are beginning to be distributed in high pedestrian traffic areas around campus. Behaviors are influenced by choices. Having a recycling container next to the trash container enables an individual to make a choice on where to put material waste. Data will be collected from these areas so that the effectiveness of the containers can be determined over time.

#### **9. Pilot Projects**

- Big Belly Solar containers are solar-powered trash receptacles. The containers hold 50 gallons of compacted trash. MSU piloted one container in a high-volume trash area near Anthony Hall. Since May 1, 2009, the unit has been emptied five times, compared to a "normal" trash service of emptying five 55-gallon containers twice per week. Rough calculations show that MSU has saved \$2,250 in labor. MSU is exploring leasing 60 units for use in 15 high-waste zones on campus. Operating costs will reduce over time, from \$115/month to \$44/month per unit, compared to current operating costs of \$175/month per unit.