

Waste Diversion – EWMCE Provides Waste Audit Model for University of Alberta

Unless something of value is lost in the trash most waste generators are not truly aware of the contents. For many people when it comes to waste it is 'out of sight, out of mind,' with no thought for where the garbage is going, or how much of it will still be here when we are not. The University of Alberta (UA) is working with the Edmonton Waste Management Centre of Excellence (EWMCE) on a waste diversion strategy to decrease the amount of reclaimable waste that goes to the landfill.

Understanding the problem and creating an awareness of how much of our waste can be recycled, or recovered is the first step toward finding a solution. Through projects like the 2012 Annual Waste Audit, the EWMCE is helping the UA to achieve their landfill waste diversion goal of 50% by 2015. To achieve this goal, the EWMCE is working with UA Facilities and Operations (FO) and the Department of Civil and Environmental Engineering.

Based on this annual waste audit, the EWMCE together with FO, is implementing the waste audit framework, audit methodology and potential technologies to treat waste generated at the University. This is an excellent opportunity for other higher educational institutions to adopt the waste audit as an effective way to achieve targeted waste diversion goals, while using the opportunity to teach waste management practices to the UA students.

Dr. Daryl McCartney, EWMCE Executive Director, Dr. Abu Kamal, NSERC Industrial Fellow of the EWMCE, Dr. Kristine Wichuk, Postdoctoral Research Fellow at the UA discovered through a preliminary literature review that no standard for waste audit sampling size and duration has been established. The waste audit model was the perfect tool to be used as an active research methodology for their UA Solid Waste Management courses. Students enrolled in Municipal Solid Waste Management (ENV E 432 and CIV E 628) were immersed in learning waste management practices by

understanding the contents of UA dumpsters, segregating the waste into recyclable and recoverable streams and then designing waste management and treatment technologies that, would over time, significantly reduce the amount of waste going to the landfill.



Fig. 1: The UA students sorting waste.

Fifty three students participated in the waste audit model, conducted September 24 to November 09, 2012 (Fig. 1), to gather data for their research projects. The samples gathered, focused on organic waste collected from several university food sites. The purpose was to examine how much waste could be recovered or recycled and thus be diverted from the landfill. Students used the waste characterization data for developing their design projects and recommended suitable technology; either composting, or anaerobic digestion for treating organic wastes at the UA. At the end of the course, eight student teams presented their findings to their instructors and judges from the UA Facilities and Operations (FO).

One of the presenting groups, 'Absolute Garbage' captures the essence of the waste audit model – "The University of Alberta is investigating various options to handle the growing amount of solid waste generated on campus. As of 2006, the UA had 3 waste

streams – fibers, beverage containers, and landfill bound – and is seeking alternative waste management practices to improve its sustainability by diverting waste from the landfill. There is also a potential to generate income from marketable streams.”



Fig. 2: First prize winners, DASAWS (\$500) with both course instructors (from left to right: Salim Hammoum, Dr. Abu Kamal -co-instructor, Curtis Faucher, Jordan Brandon, Dr. Daryl McCartney –co-instructor, Lisa Wilcox, Aileen Mo and Maya Ganpatt).

“Waste management is a universal issue and we can use what we’ve learned in this course anywhere in the world,” McBain-Tannas said of her fall semester ENV E 432 class.

The initial analysis of data shows that organic waste is over 70% by weight of the waste that is currently sent for landfilling.

Furthermore, only five percent is real waste. That means that 95% of the waste is recoverable/recyclable.

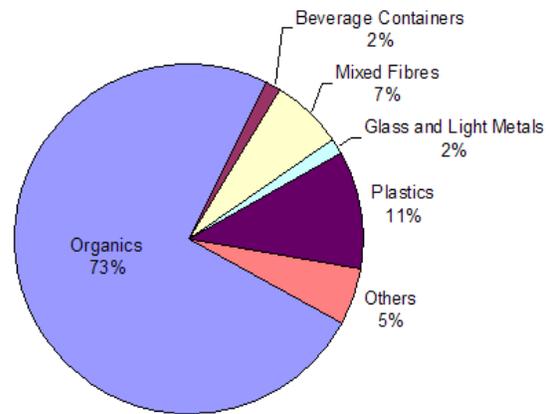


Fig. 3: Waste composition in 2012 organic waste audit

Through a well-developed collaborative model, the Edmonton Waste Management Centre of Excellence, the University of Alberta’s Facility and Operations Department, and the students of ENV E 432 and CIV E 628 were able to achieve a focused effort in planning for the future of the University’s organic waste. This is a model that is transferable to large and small institutions who are, at this moment, grappling the challenge of waste diversion.

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