

## Conducting a Waste Audit

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A waste audit is a physical analysis of an organization's waste stream, which provides a snapshot of the contents of the waste stream, identifying the types of trash generated and in what quantities. Measurement is the first step in management. An audit lets coordinators understand how much waste is being generated, where it comes from, and how much of it is recyclable, helping them identify areas to target for improved recycling and purchasing practices. A waste audit is also a graphic and effective way to make often-abstract waste and recycling concepts visible. For many people, recycling is their first connection to sustainability efforts, and a waste audit gives them real-world feedback.

A waste audit should be done during a time that reflects average activity. For example, if an audit is done on a university campus, an audit done mid-semester reflects campus activity more accurately than one conducted during a quiet break between terms. If practical, multiple audits can be done at different times of the year in order to detect seasonal variations such as yard waste, holiday packaging, or annual reports.

Before the audit itself, a site is selected that is sheltered from weather, large enough to hold the entire waste sample, located away from vehicle traffic, and away from waterways, storm drains, and environmentally sensitive areas. A worksheet is developed that lists all the materials used by the organization, by category. Typical categories include recyclable paper; recyclable plastic, glass, and metal; batteries; compostable food waste; yard waste; reusable items; and true garbage, items that are not compostable or recyclable. Categories vary by site and auditing objective, and some organizations break down paper into further subcategories; some add categories for disposable items related to food service; and some add categories for such things as toner cartridges, electronics, and pallets.

Tools and materials are assembled: tables for sorting; bins or containers for sorting waste into categories, with empty weight recorded in advance; a large scale for weighing; calculators; copies of the worksheet; thick waterproof gloves; and waterproof aprons. A formal or informal risk assessment is conducted to review potential hazards and safety protocols. An orientation session educates volunteers about safety and confidentiality; workers must avoid sharp objects or other hazards, must avoid reading any documents during the audit, and must ensure that nothing leaves the auditing area. Some organizations verify that all volunteers have had tetanus shots.

Waste is then collected into trash bags and labeled by date and location. Each bag is weighed, and the total weight and volume from each location is calculated and recorded on worksheets. Volunteers then carefully lift out waste by hand and deposit it into appropriate sorting bins, one collection-site bag at a time. Waste categories are weighed and recorded on worksheets. Both weight and volume are recorded. In some cases it is useful to record count quantities as well as weight and volume. For example, learning that 500 pairs of gloves were discarded may have more impact than learning that 55 pounds of latex was discarded. Each category is calculated as a percentage of the total waste.

Results of the audit are shared with the entire organization. The percentages of materials being sent to the landfill that could have been recycled are particularly meaningful figures. A waste audit has the greatest impact if it can be done in a location that is safe but publicly visible, where it can provide positive publicity and launch further recycling initiatives.

For more precise auditing of waste generated during a particular time period, coordinators can flush the system prior to waste collection. For example, if the audit is to analyze waste for a 24-hour period, staff must empty all the garbage and recycling containers that will be sampled 24 hours before the waste is to be collected.

Both weight and volume are recorded and analyzed for two reasons: First, because weight figures can be distorted by spilled liquids which soak into other materials and add weight, recording volume provides another measurement. Second, both weight and volume are used in contracting of waste management. Waste disposal is billed by weight, and knowing the weights of waste and recycling categories allows costs and cost savings to be estimated. In addition, knowing the volume allows estimates of the number of dumpsters, roll-off carts, and on-site storage facilities required.

In order to understand how discarded trash relates to the organization's larger waste stream as a whole, coordinators collect recycling and waste data and perform a separate audit of the recycling stream during the same time period as the waste audit, compile the additional data in a waste indicator report, and repeat the monitoring over time. One audit gives a snapshot; measuring the same indicators more than once over time allows trends and patterns to become visible. See Chapter 5, "Putting Sustainability into Practice" and Chapter 15, "Waste and Recycling" in the book *Sustainability Principles and Practice* for information about how to set up indicator reports.

## Resources

Jensen, Marc. *Lean Waste Stream: Reducing Material Use and Garbage Using Lean Principles*. New York: Productivity Press, 2014.

Jensen, Marc and Andrew Sartain. "How Healthy Is Your Recycling Program? Performing a Garbage Audit at a Major University." *Sustainability: The Journal of Record*, vol. 7 no. 3 (June 2014): 154–59. DOI: 10.1089/sus.2014.9790.

Natural Resources Defense Council (NRDC). "Waste Audits." *Greening Advisor*.

[www.nrdc.org/enterprise/greeningadvisor/wm-audits.asp](http://www.nrdc.org/enterprise/greeningadvisor/wm-audits.asp)

Stone, Michael K. "The Smart by Nature Campus." in *Smart by Nature*. Berkeley: University of California Press, 2009: 65-67.

University of Oregon Campus Zero Waste Program. "Waste Audits."

[http://zerowaste.uoregon.edu/waste\\_audit.htm](http://zerowaste.uoregon.edu/waste_audit.htm)

U.S. Environmental Protection Agency. WasteWise.

<http://www.epa.gov/epawaste/conservesmm/wastewise/index.htm>

A source for information about waste management practices for municipal and industrial sites. The website offers numerous fact sheets and other resources. Organizations can become partners free of charge, and then have access to a technical assistance team who will help to conduct a waste audit and identify waste reduction opportunities.