

Concerns With Single Stream Recycling Collection

Many recycling programs in the US are switching from collecting separated materials, to collecting paper and containers (cans, plastic jugs, glass bottles etc.) that are co-mingled in the same bin. While communities report higher recycling rates from the new collection system, in fact not all of this “single stream” material actually gets recycled—that is, turned into new products. Also, much of the single stream material tends to be low in quality, making it difficult to market when markets take a downturn.

Single stream materials are collected by trucks that compact the paper and containers. Paper co-mingled with containers becomes contaminated by broken glass; the metal, plastic, and glass are contaminated by paper. Contamination poses expensive problems for the processors and end-users, including wear and tear on equipment and increased costs of disposal. (*See the TAPPI report, #4 below.*) Also, the recyclable “contaminants” are sent to landfills and incinerators, rather than recycled. This may happen at the time it is sorted at the Materials Recovery Facility (MRF) or in other places in the recycling chain—in this country or in other countries, where we cannot track it.

In addition, paper collected in a single stream system is marketed to low-value uses like paperboard, much of which goes to overseas mills, rather than high quality uses, like fine printing and writing paper. This is having an adverse impact on domestic mills (*see the EPN report, #1 below*), and making it harder for those who want to purchase recycled paper to find it.

On the other side, the container stream is contaminated with paper. This means that glass processors, for example, now have to process more material to send the same amount of glass to be turned into containers. It also means that much of the glass goes to low value uses, and that the paper—in this case a contaminant—which should be recycled at paper mills, is sent to a disposal facility instead. Strategic Materials, a processor of glass and plastic for bottle manufacturers in Franklin, MA, has to discard about 12% of the material they receive from single stream collection systems.

A true evaluation of a recycling program accounts for what is actually recycled by end-users. This necessitates subtracting the percentage of rejected material at sorting facilities, processors and manufacturing plants, from the initial collection figure.

Overseas markets will accept contaminated material more readily than domestic markets, so that when world markets are robust there is less concern in the US about high-quality recyclables. But when markets go down, which happens cyclically, it is the cleanest materials that find a home. Single stream materials are excluded or marketed at a significant loss.

If communities want to ensure that the materials that residents separate for recycling are actually recycled, and that the recycling programs that they have worked to implement are stable and bring in the highest revenue possible, then single stream collection may not be the best choice. Also note that studies have shown that it is the larger collection bins associated with single stream that leads to higher collection rates, not necessarily the convenience of commingling materials. (*See, the Eureka study, #5 below*). It is possible to achieve equally high recycling rates with source separation by offering a larger recycling bin and a smaller trash bin, or collecting recyclables and discarded food more frequently than

trash.

Below are some of the reports that look at the impacts of the current trend toward single stream collection:

1. *The State of the Paper Industry, 2011, Steps Toward an Environmental Vision*, from the Environmental Paper Network.

This report concludes that a goal is “resolving the challenges created by single stream collection programs that drive up the cost of recovered paper fiber and increase contamination.”

2. *Beyond the Curb—Tracking the Co-Mingled Residential Recyclables from Southwest Washington* from the Department of Ecology, State of Washington, June 2010, Publication no. 10-07-009.

Recommendation: “Switch the focus from collection to recovery.... Diverting materials from the garbage can to the recycling can at the point of collection when those materials end up disposed at a processor or manufacturer, is not recycling or diversion.” (p.43)

3. *Understanding Economic and Environmental Impacts of Single-Stream Collection Systems*, Container Recycling Institute, 2009, by Clarissa Morawski.

“...the cost savings for a municipality from single-stream collection show up as cost increases for the processors and remanufacturers. The contaminants are thrown away by the paper mills. So, an item such as a plastic bottle that was recyclable when it was placed at the curb becomes trash by the time it is sorted out as a contaminant by the paper mill.”

4. “The effects of changing ONP [old newsprint] quality on a newsprint mill,” TAPPI Journal, vol. 5, no.1, by William K. Sacia and Jay Simmons.

The Abstract says that because of single stream recycling, “To maintain the high newsprint quality standards required of the mill’s customers, additional maintenance, reject disposal, and fiber costs of more than US\$ 2.5 million per year have been incurred. Increased equipment wear, due primarily to glass and other abrasive contaminants, has increased maintenance costs more than 300%. Pulper rejects, which are landfilled and consist primarily of plastics, tin, glass, and aluminum, have increased 800%. Other fiber-related costs have increased by 740%.”

5. “Downstream of Single Stream” by the staff of Eureka Recycling, based on “A Comparative Analysis of Applied Recycling Collection Methods,” *Resource Recycling*, November 2002.

“With a high residual rate, expensive processing, and the lower quality in materials, single stream collection presents concerns both from the environmental and financial point of view. In the Eureka Recycling study, the cost advantages and efficiencies of single stream collection disappear the more closely one looks at the later stages of the recycling process.”

For more information on single stream recycling, see the Container Recycling Institute web site:
<http://www.container-recycling.org/>.

-- Lynne Pledger, August 2011