



Contamination of Recyclables and their increasing cost

By: Rayner Perdana

A project of GE 532 Research for
Environmental Agencies
Instructor: Rick Reibstein



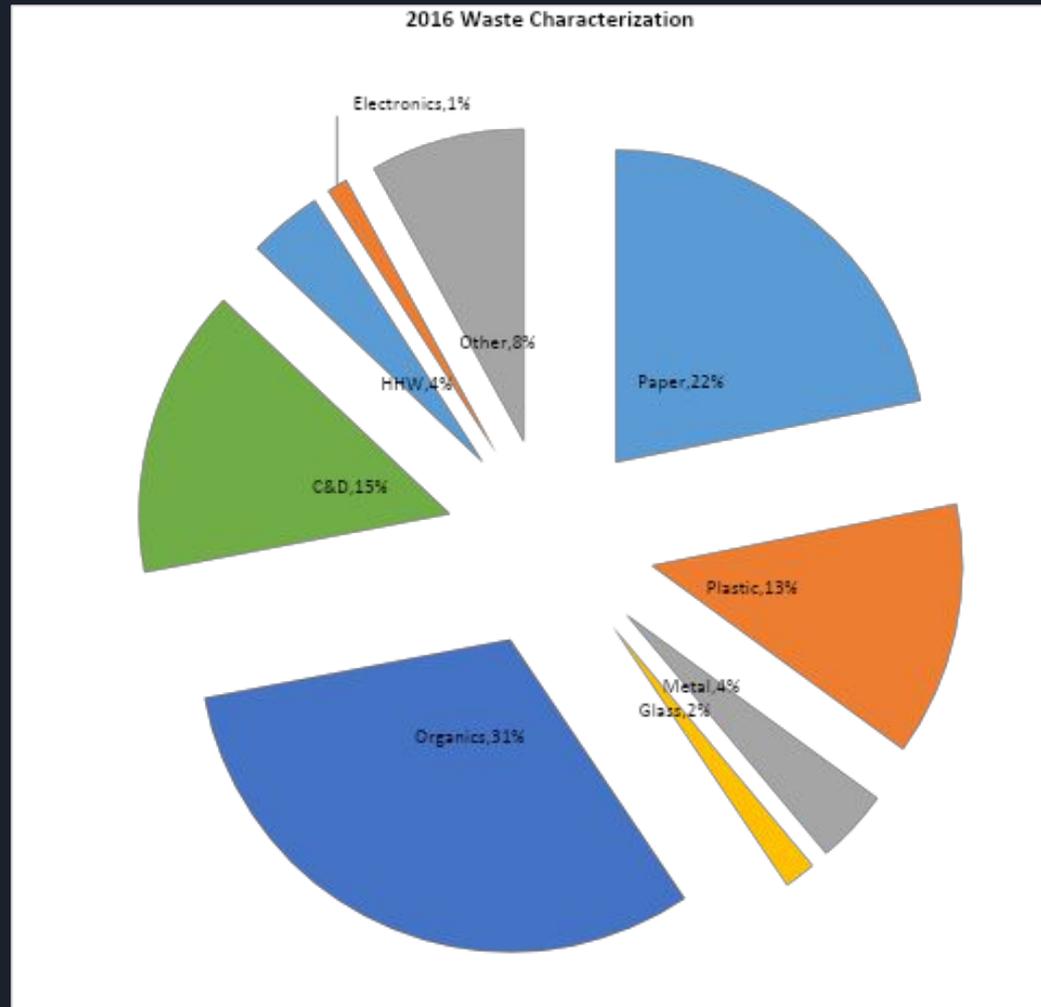
About myself



Data from 2016 Waste Characterization Studies conducted at six waste combustors in MA.

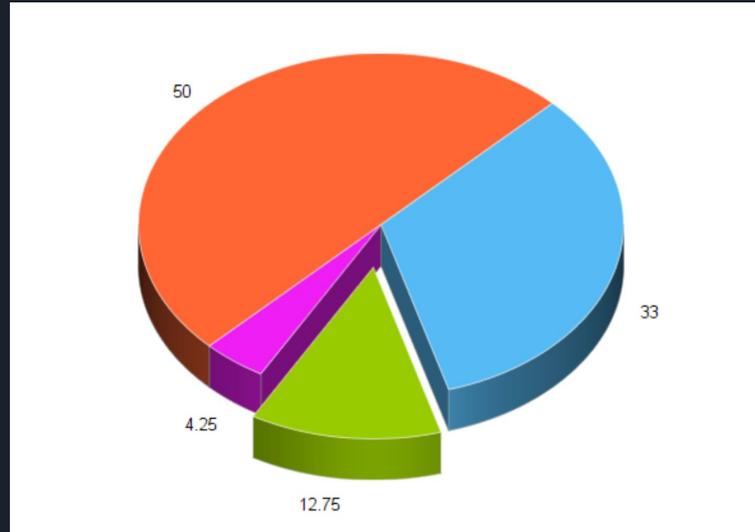
More than half of solid waste disposed could be recycled or composted.

Data Provided by Julia Greene,
MassDEP Municipal Assistance
Coordinator



Recycling Rates

■ Non-Recyclable Waste ■ Potential Recyclables in Waste Stream ■ Actual Recycling ■ Contamination



1. EPA, <https://archive.epa.gov/epawaste/nonhaz/municipal/web/html/>



Lexington increased spending

- Costs overall has been increasing
- Solid waste cost increasing by 2.5%
- Recycling cost by 2.8%
- Waste cost is higher than recycling
- Tonnage of solid waste has consistently increased over the years



Fiscal Year	Tonnage	Per Ton Fee	Fiscal Year	Tonnage	Per Ton Fee
FY2011	8,627	\$66.00	FY2016	8,272	\$63.00
FY2012	8,441	\$68.00	FY2017	8,204	\$64.58
FY2013	8,107	\$70.00	FY2018	8,322	\$66.19
FY2014	8,260	\$72.00	FY2019	9,300	\$67.84
FY2015	8,298	\$74.00	FY2020	9,300	\$69.54

1. Department of Public Works Requested Budget
Fiscal Year 2020

How Solid Waste Was Managed 2000-2009

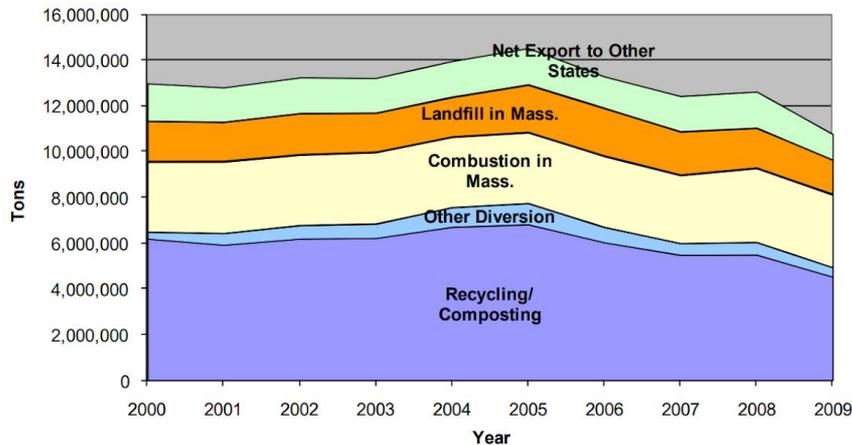
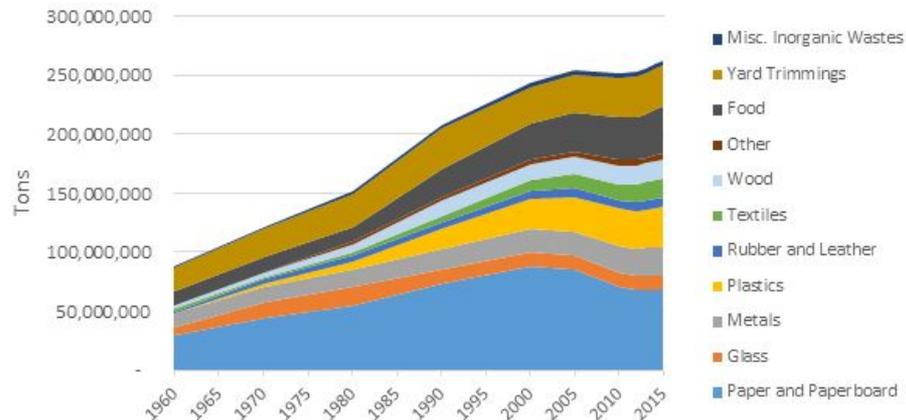


Figure 3 Massachusetts Annual Solid Waste Management: 2000-2009 (tons)

Generation Tonnages: 1960-2015



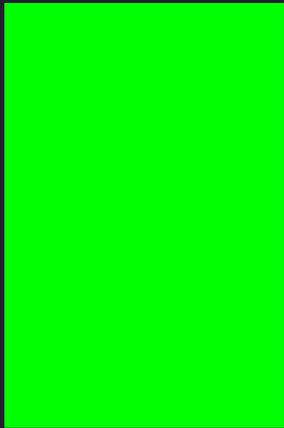
1. MassDEP, <https://www.mass.gov/guides/solid-waste-master-plan>
2. EPA, <https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/national-overview-facts-and-figures-material>

Processing of Recyclables





\$



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E.L. Harvey & Sons, Inc.

Single Stream Recycling

PLEASE RECYCLE

PAPER



phone books, mail, mixed papers, office paper, envelopes, folders, newspaper & inserts, magazines, catalogs, brochures, pamphlets

PLASTIC



plastic bottles, plastic jugs, plastic tubs

CARDBOARD



boxboard, cereal boxes, food boxes, flattened corrugated cardboard

2 feet x 2 feet max per piece

METAL



metal food and beverage containers

GLASS



glass bottles, glass jars

DO NOT RECYCLE

- Shredded Paper
- Wood material and products
- K-Cups
- Packaging contaminated w/food or grease
- Plastic Grocery Bags
- Plastic/Wire Hangers
- Plastic Wrappers (candy wrappers, chip bags)
- Plastic Film/Plastic Tarps
- Office Equipment
- Foam packaging and Styrofoam
- Aerosol cans
- Glass dishes/Pyrex/Ceramics
- Windows and light bulbs
- Mirrors
- Garden Hoses/Ropes
- Metal Cables/Electrical Cords
- Hazardous Waste

All items need to be clean and empty



E.L. Harvey & Sons, Inc.
68 Hopkinton Road – Westborough, MA 01581

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www.elharvey.com

Main Contamination Points







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- 
- Scrape out as much **peanut butter** as you can
 - Then fill the **jar** about one-fourth full with hot water.
 - Add a drop of dish detergent, put on the top and shake vigorously.
 - Dump out the contents and the **jar** should be **clean** enough to recycle.







PIZZA BOX RECYCLING







Programs



Search

- Bottle cap
- Beer **bottle**
- Plastic water **bottle**
- Plastic **bottle**
- Prescription **bottle** (empty)
- Pill **bottle** (non-prescription; OTC)
- Plastic detergent **bottle**
- Plastic soda **bottle**

RECYCLING OR TRASH?



Recycling IQ Kit

Improving Your Recycling Program

A Step-By-Step Guide



Recycling IQ Kit

Improving Your Recycling Program

A Step-By-Step Guide

CURBSIDE



If you are looking to promote recycling participation, want to educate your residents to recycle right, and have the ability to get out into your community to accomplish these goals, the Recycling IQ Kit might be for you.

We know this is no easy task! The Recycling IQ Kit has been designed to provide steps, tools, and resources to help you Improve the Quality of your recycling program. It will require resources, planning, and time on your end, as well as a partnership with your MRF and hauler, but the benefits are many. Increasing the quality of the recycling stream can save on disposal fees, improve resident satisfaction with your program, and ensures the success and sustainability of the recycling system.

To get started, use this **ASSESSMENT TOOL** to make sure your community is ready to take on this challenge. Before starting this project you'll need to assess your budget, present your case to decision makers, and get buy-in from your city/town officials, your hauler and your MRF. Lastly, take advantage of what others have learned by

This toolkit includes:

- Guidance to help you broach this subject with your MRF and hauler
- Visual instructions and tools for targeted messages
- Tips to help you get the best results
- Tools to help you track and report results



Brought to you by
the Massachusetts Department of Environmental Protection
and The Recycling Partnership





Better Reuse of materials

- Don't think of trash or recyclables as having no practical use.
- But as raw material to create something bigger.



Dalda
Cooking Oil

दिव्य दर्शन

Dalda
KACHI GHANI
MUSTARD
OIL

Dalda
KACHI GHANI
MUSTARD
OIL

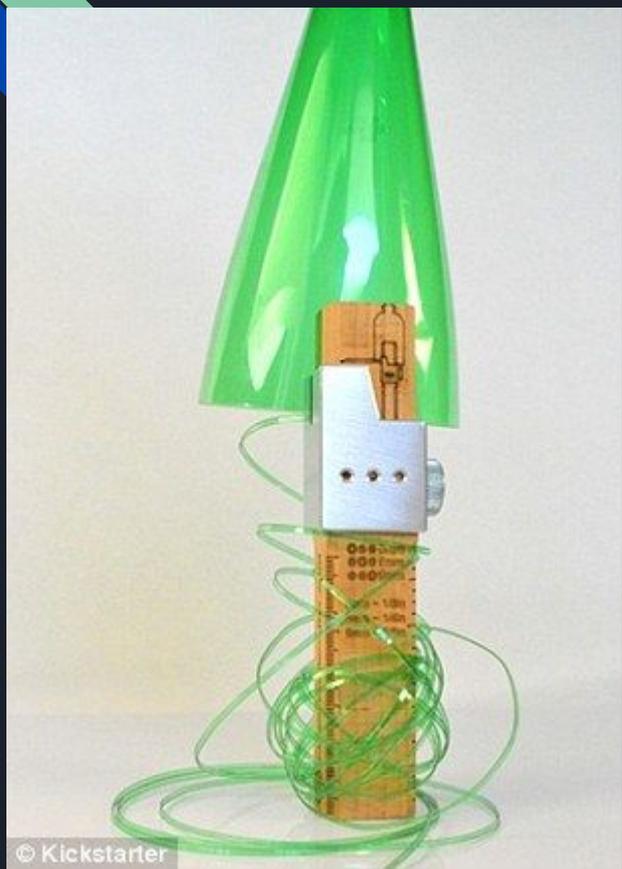
The advertisement features a vibrant yellow background with a subtle pattern of circular motifs. On the left, a large, dark glass bottle of Dalda Kachi Ghani Mustard Oil stands upright. In the foreground, a smaller can of Dalda Kachi Ghani Mustard Oil lies on its side. In the center-right, an inset photograph shows a woman in a green and white sari using a can of Dalda as a makeshift telescope, looking through it with a focused expression. The Dalda logo and brand name are prominently displayed at the top and on the product packaging.





Creative Ideas on FB







Main Contamination Points













Thank You