





Un-trashing Waste: Fostering Sustainable Consumption in U.S.

Cities

MIT ESI April 20, 2017 Eran Ben-Joseph Lily Baum Pollans



In the last 50 years, humans have consumed more material resources than in the previous history of the world.

Problem

This rapid global rise in material use has caused severe environmental damage and is a major factor behind the increase in greenhouse gas emissions.



Material consumption. Source: Fridolin, Gingrich, Eisenmenger, Erb, Haberl and Fischer-Kowalski, 2009. "Growth in global materials use, GDP and population during the 20th century." *Ecological Economics* 68(10), 2696-2705.

Material Consumption in the U.S. by Sector



Figure 1: Materials Consumption in the United States by Sector of Origin, 1975–2000 Source: WRI Material Flows Database 2005

Study Objectives

- To explore the extent to which municipalities can and do use municipal waste management programs and policies to influence material consumption
- To provide much needed data on the state of municipal waste management programming, particularly in terms of institutional arrangements and policy frameworks that are not commonly studied in the U.S. context

The "Weak Recycling Waste

Regime"

- Municipal waste management in the United States is dominated by efficient waste disposal, with uneven municipal recycling of just a few materials—usually paper, glass, metal, and plastic.
- This "weak recycling waste regime" is reinforced through:
 - Institutional and physical path dependency
 - Privatization, capital flows, contractual obligations
 - Industry lobbying
 - Financial incentives, cheap disposal
 - Bounded disciplinary knowledge
 - Habits and expectations of all system participants



Figure 4. Management of MSW in the United States, 2014

Source: *EPA, 2016*

Research Questions

- 1. How and to what extent have U.S. cities used waste management to drive sustainable consumption?
- How have the most progressive cities advanced this agenda in practice?
 What obstacles have they encountered, and how have they overcome those barriers (if they have)?

Methods

- Nation-wide survey targeting waste and sustainability managers in local and county governments
 - Cities with >100,000 (n=294)
 - survey sent to 220; 128 unique responses; 56% response rate
 - Survey conducted in fall of 2015
- Case studies
 - 6 in-depth cases selected from survey sample
 - Cases chosen to represent a variety of waste management approaches from conventional to reduction- and diversionoriented
 - Cases include: Austin, TX; Ann Arbor, MI; Spokane, WA;
 Washington D.C.; Murfreesboro, TN; Miami-Dade County, FL

Case Study Snapshots

	Ann Arbor, MI	Austin, TX	Miami-Dade County, FL	Murfreesboro, TN	Spokane, WA	Washington, DC
Region	Midwest	Southwest	Southeast	Southeast	Northwest	Mid-Atlantic
Population	117,770	912,791	2,662,874	120,954	212,052	658,893
Incinerator	No	No	Yes	No	Yes	No
Reported Diversion Rate	46%	40%	40%	45%	80%	28%
Adopted Diversion Goal	40% by 2017	90% by 2040	No goal adopted	25% by 2016	Statewide goal of 50%	80% by 2032
Pay-As- You-Throw Program	No	Yes	No	No	Yes	No
# of waste diversion / prevention programs	6	5	7	1	14	4

Are cities promoting sustainable consumption?

- Some key survey results:
 - 25% have pay-as-you-throw, the most effective tool for reducing waste generation at the household scale
 - 100% of cities surveyed collect mixed waste as or more frequently than sourceseparated recycling or organics
 - 22% have mandatory recycling; but 20% have no regulations about recycling
 - 16% have some kind of Extended Producer Responsibility (EPR) program at the local level; 6% participate in state EPR programs
 - 50% have some kind of green purchasing rules for city/county government
 - 40% have a formally adopted diversion goal; 16% have a formally adopted waste reduction goal; 53% reported no goals at all
 - 53% of respondents offer support for material reuse, including listservs, a swap tent or space, and/or a directory of reuse or salvage businesses.
 - 51% of respondents offer information or educational programming about waste reduction

How do cities overcome barriers to waste system change?

- Contextual factors:
 - Local political leadership
 - Actively engaged civil society
 - Acute pollution, high disposal costs or sudden spikes in disposal costs

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Cheh introduces legislation that will modernize the District's Waste Management Program

Bill aims to ensure that the District will meet zero waste goal of the Sustainable DC plan.

Washington, D.C. – Today, Councilmember Mary Cheh (D-Ward 3) introduced legislation that will drastically reform the District's outdated waste and recycling laws by adopting 21st Century trends in recycling and waste reduction. The reforms outlined in Cheh's legislation aim to ensure that the District will meet its goal of zero waste by 2032, as expressed in the Sustainable DC Plan. Among the requirements, Cheh's legislation creates a broad education campaign to promote increased recycling; mandates that electronic manufacturers establish recycling programs; and requires that carry-out containers from District restaurants be either compostable or recyclable.

"Currently, the District waste diversion rate is about 23%, which is 10 percent below the national average and substantially lower than other jurisdictions, including San Francisco, which has an 80 percent diversion rate, and Montgomery County, which achieves about 60 percent waste diversion," said Cheh. "And although the District has taken meaningful steps

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> SUBMIT A CONSTITUENT SERVICES REQUEST

SEARCH FOR A BILL

In Washington D.C., City Councilor Mary Cheh was instrumental in promoting and supporting a new approach to waste management.

She instigated a search for new public works leadership and championed an overhaul of the city's waste management program.





Some of the programmatic outcomes of Cheh's initiative include a partial ban on styrofoam, and fee for plastic shopping bags.

These two programs use the platform of waste management to alter availability of materials that are difficult to recycle, in effect, altering consumption.



BACKGROUND

PRESS

In all of the most successful cases nonprofits and citizen groups were instrumental in promoting zero waste programs.

These groups were a critical source of information that is not yet integrated into standard waste management professional expertise.





Acute pollution from waste infrastructure, fear of unpopular facilities like incinerators, and escalating waste management costs all registered as effective means for getting garbage onto public agendas.

How do cities overcome barriers to waste system change?

- Waste system institutional factors
 - substantial resources devoted to inclusive planning, public outreach and education;
 - and management staff with a broad base of knowledge beyond the technical field of waste collection and disposal.



Austin's waste management staff includes 20 people whose core responsibility is outreach and communication. These resources allow the city to communicate effectively and creatively with residents, through means like a six-episode reality-TV competition among Austin residents to see who could reduce their household discards the most (it's really good, too!).

"[the city got] rid of staff at the agency that were fundamentally representing the interests of the hauling industry, and who wanted to keep things the same way because it was very profitable for them. The [former] **director...He could get the trash out of the district, but it wasn't so important what he did with it...**" (D.C. environmental activist)

Washington DC was not able to make even marginal progress on recycling until system leadership with traditional knowledge and concerns was replaced by staff with a broader set of interests and expertise.

Organics as an indicator?

Type of food scrap program	Number	% of sample
Any type of food scrap program	43	40%
Educational programs	40	37%
Free or discounted backyard composting bins	18	17%
Free or discounted in-home storage bins	2	2%
Drop-off facilities	9	8%
Curbside collection (including pilots operating at time of survey)	20	19%

- Cities most likely to have ambitious organics diversion programming when:
 - they have unit-pricing/PAYT
 - they have source-separated yard waste collection

Is sustainable materials management a pathway to sustainable consumption?

Cities that already prioritize waste reduction are experimenting with organics; cities that don't, aren't. Based on this, and what we see in the cases, we can expect a widening gap between conventional cities and cities striving for sustainability. If sustainable materials management can make meaningful strides towards to sustainable consumption, it may therefore depend on action from higher levels of government to expand such programming beyond the cities that are already on this path.

Thank you.

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