Solid Waste Management

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Americans like to recycle, and recycling is indeed an important part of our integrated waste management system. This system recognizes that some portions of our waste are most efficiently recycled, some are most efficiently placed in landfills, and some should be burned in incinerators. The key is finding the mix of options that conserves the most resources, while protecting the environment. Market-driven competition is the best way to achieve this goal. Each option represents its costs to society: the value of the water, energy, land, labor, and other resources that the disposal option requires. Hence, by allowing competition between disposal options, we enable the most resource-efficient (the least expensive) option to win in any given case. Yet state and local governments do not follow this advice. They try to manage their waste with plans similar to the economic plans of the former socialist nations, creating a host of economic and environmental problems.

Legislative Background

For the most part, state and local laws govern waste management. However, federal law has an important effect on how they operate. The federal Resource Conservation and Recovery Act (RCRA) sets voluntary guidelines for states to develop solid waste management plans. When devising these plans, state and local officials estimate how much waste they expect each community to create over a 5- to 30-year period; then they plan ways to manage that waste. Because the federal government provides financial assistance to state bureaucracies that gain approval of their

plans from the U.S. Environmental Protection Agency (EPA), nearly all states and localities use waste management planning.

Misplaced Political Priorities

Relying on 30-year waste management plans presents serious problems. Public officials cannot possibly estimate future waste generation, nor can they envision future disposal technology. As a result, they often make poor decisions, invest in the wrong technologies, and choose less efficient disposal options.[1]

In addition, with more government involvement, waste management increasingly serves politically popular goals at the expense of safe and efficient disposal. In particular, the EPA's system of politically preferred waste disposal options, called the *waste management hierarchy*, governs most state and local waste management plans. According to the hierarchy, waste policy should first focus on reducing the amount of trash that people make—so-called source reduction. Second, it should emphasize recycling. And wastes that we cannot reduce or recycle should go to the politically unpopular options: to the landfill (third on the list) or to an incinerator (fourth on the list). By relying on this political formula, bureaucrats often work to promote source reduction and recycling at any cost to the environment and consumers.

In contrast, private sector recycling is always driven toward the most efficient mix of disposal options. Professor Pierre Desrochers documents that recycling and reuse of materials have always been a part of industrial processes because wasting resources does not make economic sense.[2] It is also true that private markets promote recycling only when it makes sense, whereas the government regulates recycling even when it requires more resources than it saves.

Source Reduction

The desire to reduce waste—defining *waste* as not using our resources efficiently—is a worthy goal. But source reduction confuses waste reduction with plans to abolish useful products. Ironically, attempts to eliminate useful products can increase refuse by eliminating packaging that prevents spoilage or product damage. For example, developing countries experience food spoilage of 30 percent to 50 percent because of inadequate packaging, storage, and distribution. With sophisticated packaging, storage, and distribution, developed nations experience food spoilage of only 2 percent to 3 percent.[3] Manufacturers know that more efficient packaging—rather than its elimination—saves resources.

It makes more sense to use such market forces than to assume that government bureaucrats can mandate more efficient options. For example, between 1980 and 1998, manufacturers reduced the material necessary to make a two-liter plastic bottle from 65 grams to 48 grams, an aluminum can from 19 grams to 14 grams, a glass bottle from 255 grams to 170 grams, a steel can from

1. Numerous states and localities have invested in waste disposal facilities—primarily waste-to-energy incinerators—only to find that these facilities are not economically efficient. As a result, states and localities went so far as to ban competition with these plants, until the Supreme Court ruled such laws unconstitutional. See the policy brief titled "Interstate Waste Commerce."

2. Pierre Desrochers, "Natural Capitalists' Indictment of Traditional Capitalism: A Reappraisal," *Business Strategy for the Environment* 11, no. 4 (2002): 203–20.

3. "Packaging in Perspective: Environmental Economics of Packaging, Packaging and the Environment, Special Report," *Packaging Week* 5, no. 39 (February 21, 1990): S17. The report cites the World Health Organization for these figures.

48 grams to 36 grams, and a plastic grocery sack from 9 grams to 6 grams.[4]

In the rush to serve the politically preferred goal of source reduction, some public officials seek to reduce disposable products, such as paper cups and utensils. But a Waste Policy Center report that reviewed 34 studies on disposable packaging highlights why this policy does not necessarily serve public health or environmental goals.[5] The study found that disposables reduce exposure to dangerous bacteria. For example, one study examined a sample of utensils from restaurants, hotels, medical institutions, and schools. It found, on average, 410 bacterial colonies on reusable utensils compared with 2 bacterial colonies on disposable utensils.

Because it does not require washing, disposable packaging uses less water and produces less wastewater. For example, the Waste Policy Center study found that washing a china cup in the dishwasher just once produces more water pollution than the entire life cycle of a disposable cup. Reusable products are better for the environment (in regard to solid waste disposal, air pollution, and energy usage) only if they are used several hundred times.

Recycling

Similarly, because recycling is so politically popular, public officials developed goals as part of their waste management plans to recycle a specific percentage of household waste. To meet these goals, local governments have used mandated recycling programs and required that certain products contain a percentage of recycled content.[6] As a result, local governments expend enormous resources to promote recycling, even when that means using more resources than recycling saves. Note the following facts:

- Despite conventional wisdom, recycling has environmental tradeoffs. In many cases it can be the less environmentally sound option, because recycling can use more energy and water and can emit more air pollution than other alternatives.[7] States spend $322 million annually to subsidize recycling, according to one study.[8]
- Recycling costs are passed to the consumer through trash bills or taxes. One study found that the average cost per household with curbside recycling was $144 annually; without recycling, the cost of trash disposal was $119.[9] These costs can consume a considerable amount of a city's budget. For example, Sanford, Maine, spent $90,990 to

4. J. Winston Porter, *Trash Facts—In a Small Package* (Leesburg, VA: Waste Policy Center, 1999), http://www.winporter.com.

5. J. Winston Porter, *Environmental and Public Health Aspects of Food Service Packaging* (Leesburg, VA: Waste Policy Center, 1996).

6. For information on why recycled content laws cannot promote efficient recycling, see Jerry Taylor, "Minimum Content, Minimum Sense," *This Just In*, April 25, 1997, http://cato.org/pub_display.php?pub_id=6158, and Ken Chilton, *Do We Need a Federal Garbage Man?* (Los Angeles: Reason Public Policy Institute, March 1992), http://www.reason.org/ps137.html.

7. Mathew A. Leach, Austilio Bauen, and Nigel J. D. Lucas, "A Systems Approach to Materials Flow in Sustainable Cities: A Case Study of Paper," *Journal of Environmental Planning and Management* 40, no. 6 (1997): 705–23. The study contends that recycling paper can mean more of various emissions and more energy use.

8. Christopher Douglas, *Government Hand in the Recycling Market: A New Decade* (St. Louis, MO: Washington University, Center for the Study of American Business, September 1998), 7. The Center for the Study of American Business (CSAB) is now called the Weidenbaum Center on the Economy, Government, and Public Policy. CSAB studies are available at http://csab.wustl.edu/.

9. Ibid., 14.

recycle waste that it could have safely placed in landfills for $13,365.[10]

- As citizens sort their trash for recycling, most assume that those materials then go to a recycling facility. But many times, local governments cannot find markets for all the goods they collect, and much of the material ends up in a landfill.[11] It is very difficult to determine how much governments actually recycle.

Landfills and Incinerators

Recycling is pushed largely to avoid using landfills or incinerating waste. Anti-landfill sentiments arose because many needlessly feared that we would run out of landfill space. The battle against landfills heated up in the 1990s when public officials wrongly proclaimed that we faced a garbage crisis because we were running out of landfill space. One reason for this problem, they said, was that existing landfills would close in 5 to 10 years.[12] But that is true at any point in time, because landfills last only that long. Problems arise when states fail to permit new facilities.

There was in the 1990s (and still is) plenty of land on which to place new landfills. During the alleged landfill crisis, A. Clark Wiseman of Gonzaga University pointed out that, given projected waste increases, we would still be able to fit the next 1,000 years of trash in a single landfill 120 feet deep, with 44-mile sides.[13] Wiseman's point is clear: land disposal needs are small compared with the land available in the 3 million square miles of the contiguous United States.

The real landfill problem is political. Fears about the effects of landfills on the local environment have led to the rise of the not-in-my-backyard (NIMBY) syndrome, which has made permitting facilities difficult. Actual landfill capacity is not running out. The market response to this problem is the construction of larger landfills, creating greater disposal capacity even with fewer landfills.[14]

Landfills are politically unpopular because many citizens fear the public health risks. But estimates of landfill risks—based on EPA assumptions that "maximally exposed" individuals face a cancer risk of one in a million—reveal that the risks to public health are not significant. When compared with most other forms of business and activities that we experience in daily living, the risks posed by landfills to the surrounding communities are miniscule (see chart).

Key Experts

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10. Ibid.

11. Bruce Van Voorst, "Recycling Stalled at Curbside: More and More People Are Sorting Their Garbage; But Industry Often Can't Handle the Volume," Time, October 18, 1993, 78.

12. For example, see Office of Technology Assessment, Facing America's Trash: What Next for Municipal Solid Waste? (Washington, DC: U.S. Government Printing Office, 1998), 283.

13. A. Clark Wiseman, *U.S. Wastepaper Recycling Policies: Issues and Effects* (Washington, DC: Resources for the Future, 1990), 2.

14. The growth of the regional landfill industry has led to increased interstate movement of wastes. See the olicy brief titled "Interstate Waste Commerce."

Cancer Risks (assumes 70 years of maximum exposure)	**One-in-a-Million Risks of Death** (assumes one year of exposure)
60 percent of landfills pose a one-in-10-billion risk.	Smoking 1.4 cigarettes
6 percent pose a one-in-a-billion risk.	Drinking half liter of wine
17 percent pose one-in-a-million risk.	Living two days in New York or Boston
Incinerators pose one-in-a-million risk.	Traveling 6 minutes by canoe
Modern landfills pose lowest of risks.	Traveling 10 miles by bicycle
	Traveling 300 miles by car
	Flying 1,000 miles by jet
	One chest x-ray
	Eating 40 tablespoons of peanut butter

Sources: Jennifer Chilton and Kenneth Chilton, "A Critique of Risk Modeling and Risk Assessment of Municipal Landfills Based on U.S. Environmental Protection Agency Techniques," *Waste Management and Research* 10 (1992): pp. 505–16 (landfills). Richard Wilson, "Analyzing the Daily Risks of Life," in *Readings in Risk*, ed. Theodore S. Glickman and Michael Gough (Washington, D.C.: Resources for the Future, 1990), p. 57 (one-in-a-million risk comparisons).

Recommended Readings

Benjamin, Daniel K. 2003. "Eight Great Myths of Recycling." PERC Policy Series 28. Bozeman MT: Property Environment Research Center.

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