



How Waste Monopolies are Choking Environmental Solutions, and What We Can Do About It

By Neil Seldman and David Morris, December 2020

Monopoly power in the U.S. has reached catastrophic levels, affecting every corner of our economy and society. While this crisis is gaining more attention, particularly in the tech industry, there is much more to understand about how it affects our lives. In this report, we describe the less understood problem of concentrated corporate power in the waste management sector.

Despite the many communities that have organized to transform our waste system – to reuse, repurpose, or recycle America's throwaway materials and products – the growing consolidation of waste firms has consistently undermined these efforts.

While the federal government has turned a blind eye to the monopolization of the waste industry and the high costs it imposes on communities and the environment, local governments possess significant authority to break up landfill and garbage monopolies, reenergize our stagnant recycling sector, and germinate local composting efforts.

This report is part of an ILSR series on [Fighting Monopoly Power](#) throughout our economy, coedited by Stacy Mitchell and Susan R. Holmberg. Go to our website to find even more antimonopoly analyses and tools on a wide range of sectors, including Banking, Broadband, Electricity, Food and Farming, Pharmacy, and Small Business.

The authors are co-founders of ILSR.

Learn More

- [Waste Incineration: A Dirty Secret in How States Define Renewable Energy](#)
- [Stop Trashing the Climate](#)
- [State of Composting in the U.S.: What, Why, Where & How](#)

About ILSR

The Institute for Local Self-Reliance (ILSR) is a national nonprofit research and educational organization founded in 1974. ILSR has a vision of thriving, diverse, equitable communities. To reach this vision, we build local power to fight corporate control. We believe that democracy can only thrive when economic and political power is widely dispersed. Whether it's fighting back against the outsize power of monopolies like Amazon or advocating to keep local renewable energy in the community that produced it, ILSR advocates for solutions that harness the power of citizens and communities. More at www.ilsr.org.

We face overwhelming environmental crises: our climate emergency, environmental racism, pollution, and the growing problem of waste contaminating our oceans and overflowing our landfills.

Despite the many communities that have organized to transform our waste system – to reuse, repurpose, or recycle America’s throwaway materials and products – the growing consolidation of waste firms has undermined these efforts. Meanwhile, the federal government has turned a blind eye to the monopolization of the waste industry. But local governments possess significant authority to check the reach of big waste corporations, reenergize our stagnant recycling sector, and germinate local composting and recycling enterprises across the country.

How Big Waste Consolidated Power

Over the past few decades, the municipal solid waste sector has consolidated from a network of locally controlled firms across the United States to only a handful of corporations. Thousands of small private companies (some operated by organized crime)¹ once competed to collect commercial waste, while thousands of public municipalities collected residential waste. But over the span of 25 years, local and regional garbage haulers have become vertically integrated national giants that now dominate the waste-to-landfill system and have diminished what was once a robust recycling system.

In the mid-20th century, the waste industry was at its most decentralized. Tens of thousands of firms serviced many areas of the country. Yet by the late 1990s, Waste Management Inc. (WMI) had acquired 3,000 small family owned haulers.² Today, WMI has 437 subsidiaries and controls 38 percent of the waste industry.³ The company will soon acquire the fourth largest solid waste company, Advanced Disposal, leaving only four very large publicly traded companies to dominate the waste sector.

Big Waste dominates every aspect of solid waste and recycling practice and policy. The top four consolidated companies earn \$30 billion of the \$70 billion economic sector. Big Waste companies own or control 75% of the permitted landfill capacity in major metropolitan areas and control an estimated 50% of the national hauling market, with even higher levels of domination in certain regional markets.⁴



One of the key ways vertically integrated waste firms have solidified control is through landfill ownership. It gives them a competitive edge in bidding for collection and hauling contracts against companies that have to pay disposal fees to landfills. To secure that advantage, companies have strived to maximize the percentage of the waste they collect to deposit in their own landfills.

When the environmental movement galvanized around recycling in the 1970s and 1980s, environmentalists saw recycling as an escape valve from the industry’s grip. In turn, Big Waste correctly saw this as an existential threat to its profit margin, market control, and political influence.

Recycling soared from the 1970s to the 1990s, shrinking the percentage of the waste stream deposited in landfills. In 1970, 93 percent of municipal solid waste went to landfills. By 1990, it had declined to 70 percent, and by 2000, to 58 percent. Between 1990 and 2000, while Americans’ waste generation increased substantially, the amount of waste going to landfills declined by 10 million tons.⁵ (A rapid increase in composting also drove this decline.)

Since landfill disposal typically generates higher profit margins for waste corporations, recycling began to eat into Big Waste’s profit.⁶ The waste industry responded by trying to control recycling. It built or bought large Materials Recovery Facilities (MRFs), where recyclables are sent and separated into saleable commodities. WMI is planning to soon acquire

Advanced Disposal, which means the new company will own about 40 percent of the nation's 300 MRFs. Together, WMI and Republic Services will likely handle two-thirds of the tonnage handled by all MRFs.⁷

To increase the flow of materials to their MRFs, Big Waste actively lobbied cities to move toward a recycling system based on depositing all recyclables in a single bin. For cities, "single stream" was a relatively easy sell. Collection was simpler, more convenient, and less expensive. And it only modestly increased the amount of materials being recycled. The concept was embraced with remarkable speed. In 1995, only five cities had adopted single stream. By 2003, that number jumped to 93.⁸ Between 2005 and 2014, use of single stream systems grew from 29 percent of American communities to 80 percent.⁹

Environmentalists saw recycling as an escape valve from the industry's grip... Big Waste saw this as an existential threat to its profit margin, market control, and political influence.

Yet, single stream suffered from environmental drawbacks, particularly that it led to high levels of contamination. With everything in a single bin, contamination from food waste or non-recyclables means the facilities that sort the materials can't repurpose the recyclables and get them to market, which means that those materials are diverted to a landfill or incinerator.¹⁰ Between 2008 and 2018, the percentage of recyclables that were so contaminated they went to landfills rose from about 7 percent to about 25 percent.¹¹

While contamination of recyclables diminished the economic value of recyclables, few cared because a rapidly industrializing China, desperate for materials, was the major recipient of America's solid waste. But starting in 2013, rising labor costs in China meant they became unwilling to bear the additional costs of sorting contaminated mixed recyclables or sending them to its landfills.

This was catastrophic for U.S. recycling efforts. As China exited, recycling prices plunged, even as MRFs invested in sophisticated optical sorting equipment and in more workers. Waste companies passed on the higher costs by renegotiating recycling contracts with towns, cities, and

counties. Currently, local governments that can't afford the new recycling rates have reduced their recycling efforts and allowed MRFs to divert more materials to landfills and incinerators.¹² Since the point at which both Big Waste came to dominate recycling and single bins with mixed recyclables became the dominant collection point, recycling rates have slowed and then leveled off. While national recycling rates increased by 77 percent from 1990 to 2000, they increased by only 11 percent from 2000 to 2005, by eight percent from 2005 to 2010 and by three percent from 2010 to 2015.¹³ The national recycling rate shows little sign of recovering without direct intervention from local and federal government.

The Policy Choices Driving Big Waste

The consolidation of the waste industry stems from many factors. Business leaders with access to capital saw an opportunity to form vertically integrated national companies. A desire to decriminalize the industry also played a part, as did a broad ideological shift in our politics that supported economic concentration. As we discuss here, the policy choices of both federal and local governments also directly determined the degree of consolidation in the waste industry.

In terms of federal policy drivers, the Federal Trade Commission (FTC) and the Department of Justice's Antitrust Division have done little to scrutinize waste consolidation. Their actions have mostly been limited to investigating pending mergers for their possible impact on prices, almost always at the urging of local governments or smaller waste management companies.¹⁴

For example, in 1999, Peter Anderson of Recycle Worlds Consulting wrote to the Department of Justice (DOJ) to ask it to evaluate the impending acquisition of WMI by USA Waste. He urged the DOJ not to approve any asset divestiture that went to one of the major integrated firms. The DOJ responded, "The United States could not categorically conclude that selling the assets...to a large national waste collection and disposal firm would be less competitive than a sale to a municipal agency or small independent firm, or that large waste companies are more prone to collude."¹⁵

This response is typical of the DOJ, which has approved all waste industry merger deals of the recent decades. Instead of suing to block a pending merger, the agency typically demands that the acquiring company divest some of its assets. But in most cases these assets are purchased by other large firms, resulting in no net change in regional consolidation.



This vacuum in antitrust enforcement has meant that unfunded environmental waste policies at the federal level have accelerated the consolidation of the industry. For example, the Resource Conservation and Recovery Act of 1976 set enforceable federal standards for landfill design. This law required public and private landfills to invest large sums to upgrade, but many cities lacked the capital to comply. (In the 1970s, local governments were confronted with a similarly costly mandate from the federal government to upgrade their water infrastructure to meet the new standards of the 1972 Clean Water Act. But at that time the federal government awarded hundreds of billions of dollars in grants and loans to help pay for the upgrade; such money was not forthcoming to upgrade landfills.) As an unintended result of this federal policy, big waste companies bought up a majority of our country's local publicly owned landfills. In 1980, there were 10,000 small private and community landfills in operation. By 2000, that number dropped 80 percent and by 2018, there were just 1,600 of these landfills operating.¹⁶

Cities have also enabled consolidation in the waste industry. For example, in the 1980s and 1990s, city managers were more than willing to enter into incinerator contracts with Big Waste, which was another way for these companies to vertically integrate their operations. Cities were also easily convinced to switch to single-stream recycling, which both helped concentrate the industry and choked recycling rates. By selling off their landfills, cities also encouraged consolidation. While they were largely driven to do it because of federal regulatory changes and lack of local capital, the result was more industry consolidation.

How Big Waste Companies Took Over Curbside Recycling

By the mid-1980s, cities gave in to public pressure to adopt citywide curbside services. But what seemed like a victory for recycling activists soon turned sour. The community-based enterprises that had handled recycling before were phased out as recycling became mandatory; some were purchased by the consolidated haulers. At the same time, city governments were indifferent and even hostile to managing curbside recycling; it was an added responsibility with which they were no longer familiar. They soon privatized services to get rid of their problem. Privatization paved the way for the big waste hauling conglomerates to take over urban recycling by lowballing contracts to gain market share and then adjusting the contracts to their interests. They raised rates, added surcharges, cut out glass and plastic bag recycling, and forced cities to halt local processing and ship materials up to 50 miles out of town for shoddy processing. For the industries' convenience, they introduced **single stream systems** to cities, which called for collection of mixed recyclables as opposed to localized **dual stream systems**, which kept paper separate from other materials.

The Broader Impacts

Concentration in the waste industry puts both economic and environmental burdens on society. Transitioning our throw-away solid waste system to emphasize reduction, reuse, recycling, and composting can protect the public's and planet's health, and contribute to a more resilient, localized economy.

The consolidation of our waste industry deprives society of meaningful economic benefits. First, there are few efficiencies gained by getting bigger. Even Big Waste's industry leaders know this. As the CEO of Allied Waste once conceded, even as his company was about to acquire the nation's second largest solid waste company, "The reality of this business is that it's local."¹⁷ He didn't view Allied as a single \$10 billion company, but rather "many very good, very well-managed \$10 to \$50 million collection companies around the country." The implication is that they would be as efficient if they remained stand-alone companies, undermining the so-called logic of bigness that has justified mergers in other industries.

Waste consolidation also drives up prices, potentially adding billions to our solid waste bill. Estimates vary about the size of that concentration tax. But the fact that it is significant is evidenced by the dramatic reduction in prices experienced by San Jose, California, and Broward County, Florida, when they introduced competition into a previously monopolized system.

Corporate waste consolidation also harms our environment. Using recycled materials saves an enormous amount of energy and raw materials and dramatically reduces the environmental damage associated with both energy production and raw material excavation and product manufacturing. Composting similarly yields tremendous ecological benefits. Compost made from yard trimmings and food scraps is a soil amendment that enhances soil fertility and structure, binds urban pollutants, reduces the need for synthetic agricultural inputs, and sequesters carbon. Yet the waste industry's shortsightedness around processing means the majority of the 260 million tons of municipal solid waste (more than four pounds per person per day) ends up in methane-producing landfills.¹⁸ In fact, landfills, which are disproportionately sited near poor communities of color, are the third-largest source of United States methane emissions, a highly potent greenhouse gas contributing to global warming.¹⁹

Freeing our Waste and Recycling Systems from Big Waste

Local and state governments have significant power to decouple the waste industry from megacorporations, encourage competition, and build a resilient and sustainable waste system that maximizes local recycling and composting capacity.

Exercise Local and State Authority to Promote Public Landfills

Public ownership of landfills takes them out of corporate hands and creates the necessary democratic conditions to reform the economics and outcomes of our recycling systems. Despite the DOJ's failure to recognize the benefits of public landfills over landfills owned and controlled by a large vertically integrated company, there are many examples of municipally and county-owned landfills, and a few state-owned examples.

Chester County, Pennsylvania, for example, created a public authority that owns and operates a landfill serving 49 of the region's 73 cities and that contracts with private haulers. It hasn't raised the fee for dumping waste in its landfill for 10 years, leaving cities with more money to invest in recycling.²⁰

And Rhode Island has created a solid waste disposal structure that is unique among states. In 1974, the state established the Solid Waste Management Corporation, later renamed the Rhode Island Resource Recovery Corporation (RIRRC). The RIRRC acquired a landfill and has expanded it several times. Ninety-seven percent of the state's waste is disposed in that public landfill.²¹

In 1986, driven by public opposition to giant incinerators, Rhode Island became the first state to mandate recycling. Two years later, it built a state-owned MRF. Unlike out-of-state refuse, out-of-state recyclables are welcomed. Cities collect refuse, but the public owns the disposal system and thus can monitor the quality and content of the waste generated in the state. Each year the Rhode Island Resource Recovery Corporation releases detailed information on the solid waste systems of each city and makes public a detailed budget of its own operations. The agency, and the legislature, are not always responsive to its citizens' desire to maximize environmental and local economic benefits, but the structure is in place to enable them to directly participate in policy making.

Favor Locally Owned and Mission-Driven Waste Companies

If public ownership is not desirable or possible, another solution is local governments favoring companies that are locally owned and mission driven.

One of the best examples is the now-venerable Eureka Recycling in Saint Paul, Minnesota. St. Paul granted Eureka the contract to collect and process its recyclables. When Ramsey County sold off their materials processing plant to WMI, Eureka realized that WMI could attract recyclables by undercutting Eureka's prices. They put together a financial package, including loans from paper mills they were supplying, and built their own MRF. As a result, they were able to win the recycling collection contract from Minneapolis as well as Saint Paul.²²

Over the years Eureka has earned widespread support. It is the only company in the Twin Cities that both picks up recyclables and processes them. Eureka is a mission-driven, non-profit company that calls itself a "social enterprise." It employs more than 100 people, pays them well, and employs unionized drivers. Eureka has also identified in-state and regional markets for its materials, allowing Saint Paul to better weather the cutoff from the Chinese market better than most communities.

Eco-Cycle, in Boulder, Colorado, is another recycler that has built a reputation for innovation and service over decades, thereby earning the loyalty of the city. In the mid-1970s, Eco-Cycle used school buses and volunteer collection teams. The teams were provided by local nonprofit organizations, including churches and Boy Scouts. Sponsoring organizations shared in the revenue from the materials collected. The system ultimately grew into the current system where Eco-Cycle manages the processing facility and undertakes public education and promotion.²³

Cities can also work with nonprofit organizations to provide waste management services. In 2019 Ann Arbor voted to reopen its public MRF to be operated by a local nonprofit. Recycle Ann Arbor, a nonprofit environmental service provider founded in 1977, holds a contract with the city to provide recycling collection services for residents and businesses. The decision was driven by the savings that would result from reducing the transportation needed to bring local recyclables to a distant MRF.²⁴

Exercise Local Authority to Promote Competition

Cities have meaningful power to foster competition in waste and recycling markets. In 1979, the city of San Jose, California, solicited bids for a five-year refuse collection contract. Only BFI, which also owned the only landfill with the capacity to handle the city's refuse, responded to the call. In the next five years, BFI hiked collection prices by more than 56 percent.²⁵

Realizing it needed to establish a competitive environment, the city aggressively solicited the construction of a second landfill. With the active support and participation of the city at state regulatory proceedings, the private landfill was built in a remarkably short three years, just in time for the next solid waste bidding. When San Jose bid the next disposal contract, the price fell by 33 percent. The contract also specified that all firms that collected refuse, including landfill owners, would pay the same disposal fee. That attracted several bidders for the collection part of the contract. The price fell by 25 percent and the combined savings was over \$75 million. This allowed San Jose to reduce collection rates to households and businesses and finance a radical redesign of its solid waste system to emphasize recycling.²⁶

Mandate Organic Waste Diversion

In the late 1980s and 1990s, state and local governments banned yard waste from landfills. Today food waste, about 22 percent of landfill waste, is the target.²⁷

In 2009, San Francisco mandated the diversion of recyclable and compostable materials (including food waste) in different receptacles. San Francisco now boasts one of the



Kenneth Moss, youth worker at the Baltimore Compost Collective, speaks at anti-incinerator rally. Credit: United Workers.

highest diversion rates in the country. In 2011, Connecticut was the first state to pass a commercial organic waste law. Rhode Island and Vermont have passed similar laws to Connecticut; all three only ban disposal if food waste recycling capacity exists within a certain mileage radius, which is intended to incentivize the building in-state infrastructure. Vermont also has the only universal law that bans food waste from all Vermonters' trash bins, not just large, commercial producers.²⁸ California passed a law in 2014 requiring businesses to divert organic waste (based on amount generated) and requiring local jurisdictions to implement organic waste recycling programs.²⁹ Massachusetts has instituted several policies including a 2014 ban on disposing commercial food waste aimed at diverting 35 percent of food waste in the state by 2020; the state found in a 2016 study that the ban had added hundreds of new jobs to the economy, increased gross state product by over \$70 million, and generated \$5 million in tax revenue.³⁰ New York recently passed a similar law for large food-waste generating institutions, which will take effect in 2022.³¹ Food waste can be diverted from landfills and trash incinerators to composting, anaerobic digestion, animal feed, and can even be donated for human consumption.³²

Foster On-Farm and Small-Scale Composting with Permitting Exemptions

In the United States, more than 5 million tons per year in new composting capacity and infrastructure are needed. This can be met with a distributed and diverse composting sector, consisting of a mix of facility types and scales. Too often cities and states favor mass industrial production of compost and sweep aside the rich array of locally based options such as composting at home, community gardens, farms, schools, and at other micro-scale facilities operated by nonprofits, cooperatives, and social enterprises. Community-scale solutions won't take root unless they have support, including policy support.

One way that states can promote small-scale enterprises and on-farm composting is via their permitting regulations. Onerous permit requirements hinder the development of small-scale composting yet are usually unnecessary for these composters; there are generally significantly fewer risks associated with small-scale composting than with large-scale commercial composting sites. A number of states have incorporated permit exemptions into their composting regulations to encourage on-farm and small-scale composting.³³

Create Grant Programs

Making funding available seeds critical recycling infrastructure and programs. CalRecycle is one state agency that offers a number of different grants for recycling and food waste reduction initiatives through its Greenhouse Gas Reduction Fund.³⁴ A coalition of California-based community composters was recently awarded \$1.35 million under CalRecycle's new community composting-focused grant program.

Another initiative in California, the Healthy Soils Program, is driving use of compost on agricultural land as a strategy not only to build healthy soils, but also to sequester carbon. The program provides grants directly to farmers in order to incentivize the implementation of conservation practices.³⁵

Per-ton surcharges on trash disposal are one important strategy for funding waste reduction, reuse, recycling, and composting grant programs. New Jersey's \$3-per-ton surcharge resulted in the award of \$14 million in recycling grants last year to municipal and county governments.³⁶ Pennsylvania's similar \$2-per-ton disposal surcharge also funds local recycling grants, such as the Food Recovery Infrastructure Grant.³⁷

Expand Glass and Plastic Container Recycling by Enacting Bottle Bills

Glass is an important component of our solid waste stream. Big waste companies either insist that glass is not recyclable, or charge cities very high prices to collect and process it. But processing businesses have made glass recycling work. There is a ready market for recycled glass in industry and smaller materials recovery. There is also a ready market for the high-grade plastic used in containers, as long as it is separated from the rest of the waste stream.

One key element of a glass or high-grade plastic recovery strategy is the enactment of "bottle bills," which require a deposit, paid by the consumer, on beverage containers that is redeemable when the containers are returned to a recycling facility. Bottle bills bring in materials that have value – and sometimes high value, like glass and metal. Currently, ten states have bottle bills; half a dozen are debating new ones.

In 2019 Oregon achieved an impressive 90 percent recycling rate on containers covered by its expanded bottle deposit system. The rate jumped from 61 percent in 2017 after the state increased the deposit value from five to ten cents a container. Oregon also expanded the types of beverages

covered by its bottle bill. Passing and expanding bottle bill legislation helps increase the quality of materials in the recycling stream and helps increase recycling overall. Such legislation can also foster refillable beverage containers, which are environmentally preferable to single-use products. Oregon became the first state offering breweries refillable beer bottles in 2018 when the nonprofit Oregon Beverage Recycling Cooperative, which oversees the state's bottle bill, began a project that collects and redistributes bottles for refilling.³⁸

Adopt Proven Policies and Integrate Them into a Comprehensive Municipal Solid Waste Strategy

There is a wealth of expertise and experience in the thousands of cities and counties in this country. Some of the state-of-the-art policies and programs local governments might adapt include mandatory commercial and household recycling and composting, unit pricing for household garbage collection, co-collection, biweekly collection, product bans, green procurement, source reduction, home composting incentives, and repair and reuse centers. Municipal programs can also integrate with and leverage an array of proven state policies and programs. These include minimum recycled-content regulations, landfill bans, landfill pricing surcharges, and tax credits and incentives.³⁹

Educate the Community about the Value of a Circular Economy

The high levels of contamination resulting from single stream recycling and the loss of the Chinese market have led a number of cities to engage in aggressive educational campaigns to encourage people not to deposit non-recyclables in single stream bins. This is necessary but would have been much less so if cities had continued to maintain a vibrant recycling culture nurtured by the modest but important participation of citizens in sorting their recyclables into different streams.

Since 1970 the goal of citizen action on this issue has been to reduce the environmental impact of poor consumer habits and to relocalize the materials economy, closing the loop between production, use, and recovery, thereby creating a circular system or economy.⁴⁰ The need to identify and create, or in many cases recreate the domestic local and regional economies is a key. "Buy Local" is an important guiding slogan that correlates with Reduce, Reuse, Recycle. Relocalization and maximum recycling both require a robust materials recovery system that reduces contamination levels as much as possible. ■

**Learn more about our
Waste to Wealth and
Composting Initiatives**

WASTE TO WEALTH →

COMPOSTING →

Notes

1. "Endgame! Consolidation and Competition in the Solid Waste Industry," Peter Anderson, *MSW Management*, January 2000.
2. Ibid.
3. "Waste Management, Inc. Form 10-K," 2017.
4. "Monopoly and the U.S. Waste Knot," Neil Seldman, *Institute for Local Self-Reliance*, December 2018.
5. "National Overview: Facts and Figures on Materials, Wastes and Recycling," *United States Environmental Protection Agency*, Accessed June 2020.
6. One analysis of what the Environmental Protection Agency calls Construction & Demolition landfills finds that disposal generates two to five times higher returns than recycling." As Morgan Stanley advised investors in 1999, "Although the publicly traded waste companies derive a very small portion of their revenues from it, recycling is primarily seen as a competitive threat because it steals volumes away from landfills, their most promising assets. Therefore, we view any declines in recycling as bullish for these stocks;" "Construction Boom! Which Waste Company Stands to Benefit the Most?," Veni Vidi Emi, *Waste Advantage Magazine*, February 2018; "Recycling is the Enemy of Wasting," Neil Seldman, *Institute for Local Self-Reliance*, December 2018.
7. "10 insights from public waste company 10-Ks," Cole Rosengren, Rina Li, *WasteDive*, March 2019.
8. "Single-Stream Recycling," *Scientific American*, September 2013.
9. "2014 AF&PA Community Survey," Louis Berger, *American Forest & Paper Association, Inc.*, February 2015.
10. "Your Recycling Gets Recycled, Right? Maybe, or Maybe Not," Livia Albeck-Ripka, *New York Times*, May 2018.
11. "The Era of Easy Recycling May Be Coming to An End," Maggie Koerth, *FiveThirtyEight*, January 2019.
12. "Your Recycling Gets Recycled, Right? Maybe, or Maybe Not," Livia Albeck-Ripka, *New York Times*, May 2018.
13. "Advancing Sustainable Materials Management: 2015 Fact Sheet," *United States Environmental Protection Agency*, July 2018.
14. "Waste Management predicts March DOJ approval for Advanced deal, with 'robust' divestiture interest," Cole Rosengren, *Waste Dive*, February 2020.
15. "Response to Comments from RecycleWorlds Consulting Corp.," *United States Department of Justice*, September 1999.
16. Op cit. "Waste Knot."
17. "Comment on Merger Between Allied Waste Industries and Browning Ferris Industries - Case 99-CV-01962 (D.C.D.C.)," Robert J. Kramer, *United States Department of Justice Antitrust Division*, October 1999.
18. "National Overview: Facts and Figures on Materials, Wastes and Recycling," *United States Environmental Protection Agency*, Accessed June 2020.
19. "Race is the biggest indicator in the US of whether you live near toxic waste," Zoe Schlanger, Quartz, March 2017; "Basic Information about Landfill Gas," *United States Environmental Protection Agency*, Accessed June 2020.
20. "Why Some Landfills are Becoming Privatized, While Others Remain Public," *Waste 360*, September 2018.
21. See Rhode Island Resource Recovery Corporation website.
22. See Eureka! Recycling website.
23. See Eco-Cycle website.
24. See Recycle Ann Arbor website.
25. "Reviving Competition for Waste Disposal Saves San Jose Millions," Par Sauseda and Gerald E. Newfarmer, *Western City*, August 1986.
26. Ibid.
27. "National Overview: Facts and Figures on Materials, Wastes and Recycling," *United States Environmental Protection Agency*, Accessed June 2020.
28. "Vermont's Universal Recycling Law," *Vermont Department of Environmental Conservation*, Accessed June 2020.
29. "Mandatory Commercial Organics Recycling," *CalRecycle*, June 2020.
30. "Commercial Food Material Disposal Ban," *Massachusetts Department of Environmental Protection*, Accessed June 2020.
31. "Food Donation and Food Scraps Recycling Law," *New York State Dept. of Environmental Conservation*, Accessed June 2020.
32. "Composting for Community Map," *Institute for Local Self-Reliance*, Accessed June 2020.
33. "On-Farm Composting Rules and Permit Exemptions," *Institute for Local Self-Reliance*, Accessed June 2020.
34. "Greenhouse Gas Reduction Grant and Loan Programs," *CalRecycle*, Accessed June 2020.
35. "Healthy Soils Program," *California Department of Food and Agriculture*, Accessed June 2020.
36. "DEP Awards More Than \$14 Million in Grants to Local and County Governments to Enhance Recycling Efforts," *New Jersey Department of Environmental Protection*, December 2019.
37. "Recycling Financial Assistance," *Pennsylvania Department of Environmental Protection*, Accessed June 2020.
38. Jeff Alworth, "Oregon Introduces Refillable Bottles," www.beervanablog.com/, June 19, 2018; and "Bottle Drop Oregon Redemption Center," www.bottledropcenters.com/, Accessed June 2020.
39. "Zero Waste Case Study: Renton," *United States Environmental Protection Agency*, Accessed June 2020; "Why Should Baltimore Recycle More?," Neil Seldman, *Institute for Local Self-Reliance*, April 2017; "State Mandates on the Purchase of Recycled Content Paper," *Practice Greenhealth*, 2010; "What's Banned in Landfills: A State-By-State Guide," Trey Granger, *Earth911*, November 2017; "State Funding Mechanisms for Solid Waste Disposal and Recycling Programs," *United States Environmental Protection Agency*, June 2014; "Packaging and Environmental Legislation in the United States: An Overview," *Keller Heckman LLP's Packaging Practice Group*, *Packaging Law*, July 2002.
40. The definition of circular economy is an economic system where products and services are traded in closed loops or "cycles."