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Privatizing Landfills:
Market Solutions For Solid-waste Disposal

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POLICY STUDY 267

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Policy Study No. 267

Privatizing Landfills: Market Solutions for Solid-waste Disposal

BY GEOFFREY F. SEGAL AND ADRIAN T. MOORE

Executive Summary

Local governments face increasing regulatory costs in owning and operating landfills, as well as ever more difficult challenges in finding politically acceptable locations for new facilities to replace old ones or accommodate new landfill growth. Many governments have responded to these regulatory and siting challenges by privatizing their landfills.

Privatization of landfills is a growing trend—the percentage of facilities owned by the public sector declined from 83 percent in 1984 to 73 percent in 1997 and to 64 percent in 1998. And a 1998 R. W. Beck survey showed that 27 percent of municipalities with populations greater than 100,000 were considering privatization as an option to fulfill their disposal needs.

The many reasons for this privatization trend include managing liabilities, improving efficiency, cutting costs or debt, improving access to capital, and improving accountability. Each reason, or combination of reasons, lends itself to a different option for managing landfills. Privatization options range from cooperative agreements with private firms for support services to management contracts, asset sales, and even complete reliance on the landfill market for services.

To help public officials understand these options, as well as emerging policy issues such as consolidation in the solid-waste industry and attempts to control the flow of solid waste between states, this report examines in depth various objections to privatization, presents a number of detailed case studies of landfill privatization, and provides a short "how-to" guide for privatization.

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Part 1

Introduction

Through the Resource Conservation and Recovery Act (RCRA) of 1976 and its subsequent amendments, Congress and the U.S. Environmental Protection Agency (EPA) established environmentally acceptable practices for waste-disposal sites (landfills) across the nation.[1] Congress developed these regulations to minimize environmental impacts and protect human health, but one result was to increase landfill costs.

RCRA "Subtitle D," and other regulations that govern the design and operation of municipal solid-waste landfills, can increase landfill costs by as much as $25 per ton in some circumstances. Tip fees reflect the costs of regulations, though other factors, such as level of competition, supply-demand trends, and trends in landfill size, affect prices charged to end users. For a typical landfill, regulatory costs include the following:[2]

- **Landfill Liners:** $100,000 to $300,000 per acre;
- **Leachate Treatment and Disposal:** $1 million to $2.5 million to meet applicable water-discharge standards;
- **Groundwater Monitoring:** annual operating costs in the $50,000 to $90,000 range;
- **Methane Control:** capital costs for installed systems ranging from $500,000 to $2 million, plus annual operating costs ranging from $100,000 to $200,000; and
- **Postclosure Funding:** total costs in the range of $10 million to $12 million, generally included in the tip fee for the life of the landfill.[3]

In addition to facing increased regulatory costs, both public and private landfill investors face ever more difficult challenges in finding politically acceptable locations for new facilities to replace old ones or accommodate new landfill growth. Many governments have responded to these regulatory and siting challenges by privatizing their landfills. This report examines the various options facing local governments, discusses "best-practice" examples of privatization in the United States, and presents a "how-to-guide" for officials interested in further examining privatization alternatives.

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1 42 U.S.C., sec. 6941–49. Also see U.S. Environmental Protection Agency, *Solid Waste Disposal Facility Criteria*, 40 CFR Parts 257 and 258 (Washington, D.C.: U.S. Envrionmental Protection Agency, 1991).

2 Costs taken from "Calculating Landfill Costs: Background and Worksheet," Browning-Ferris Industries, Houston, Texas, 1992, www.bfi.com. See Appendix A for Sample Landfill-Cost Worksheet.

3 Ibid. The costs that make up that total include (approximate figures): groundwater monitoring—30 years @ $60,000=$1,800,000; leachate treatment—30 years @ $140,000=$4,200,000; methane control—30 years @ $150,000=$4,500,000; and site maintenance—30 years @ $25,000=$750,000.

Part 2

Trends

A long history exists between local governments and private firms handling municipal solid waste (MSW). For decades, local governments have pursued privatization for various solid-waste services, including recycling, waste collection, landfill management, waste-to-energy facilities, and hazardous-waste disposal. However, many municipalities had long considered landfills to be a basic function of government. Though some contracted with private firms for landfill management, many municipalities maintained ownership of these facilities. By the 1990s these operations were increasingly considered to be candidates for full privatization. The dramatic increases in capital and operational costs of solid-waste disposal, in part because of Subtitle D regulations, increased the benefits of shifting to larger, regional landfills and accelerated the rate of privatization. The percentage of facilities owned by the public sector declined from 83 percent in 1984 to 73 percent in 1997 and to 64 percent in 1998.[4] And a 1998 R. W. Beck survey showed that 27 percent of municipalities with populations greater than 100,000 were considering privatization as an option to fulfill their disposal needs.[5]

Over 3,000 municipal solid-waste landfills currently operate in the United States. The average life expectancy of existing landfills is about 16 years.[6] Local governments must continually choose between closure, expansion, and construction of new facilities. Figure 1 shows the breakdown of landfills by ownership and operation. Just over half of all landfills in cities with over 100,000 residents are operated by the public sector; another 10 percent are publicly owned but operated by private firms through a contractual arrangement. The remainder (38 percent) are both privately owned and privately operated. Thus, private firms operate almost half (48 percent) of this nation's landfills.[7]

Private firms have operations that cut across jurisdictional boundaries; most private firms operate multiple landfills, offering an abundance of experience. Though private firms own only 38 percent of the total number of landfills for communities with over 100,000 residents, they dispose of 58 percent of municipal solid waste (by volume [tons]) and own 67 percent of current total landfill capacity. In contrast, public agencies own 62 percent of the landfills for communities with over 100,000 residents, but they dispose of only 42 percent of

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4 *Directory of Solid Waste Disposal* (Alexandria, Virginia: Chartwell Information Publishers, 1998), p. 13, www.wasteinfo.com.

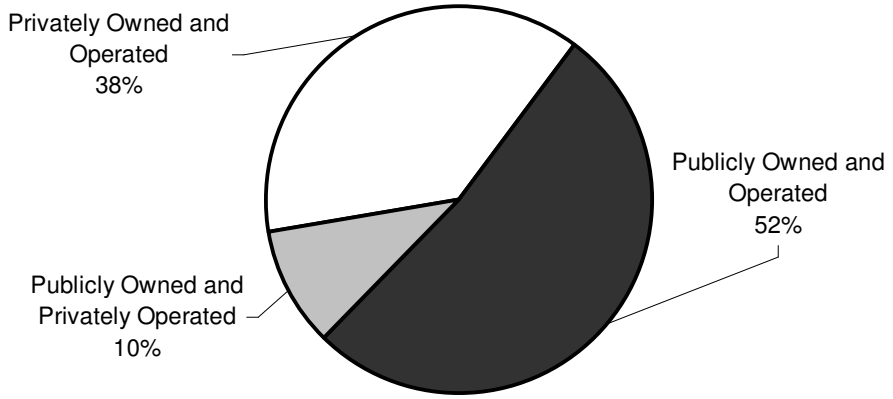
5 Jonathan Burgiel, "Trends in Privatization and Managed Competition: National Survey Results," R. W. Beck, Seattle, 1998, www.rwbeck.com.

6 *Directory of Solid Waste Disposal,* p. 11.

7 Another survey, of the 60 largest cities and 20 largest counties in the United States with government solid-waste services and of 20 solid-waste authorities in the United States and Canada, found that 60 percent own a landfill, 46 percent operate one (implying that 14 percent contract for operations), and 31 percent contract for use of a private landfill. Laith B. Ezzet, "Solid Waste Survey of 100 Large Public Service Providers," paper presented at SWANA Wastecon, October 1999.

municipal solid waste (by volume [tons]) and own only 33 percent of the current waste disposal capacity (see Figure 2). These figures suggest that private landfills have, on average, more permitted capacity than their publicly owned counterparts.[8] Larger facilities—whether public or private—are often more efficient, utilizing economies of scale that enable operators to charge lower tip fees.

Figure 1: Breakdown of Landfill Ownership/Operation



Source: Jonathan Burgiel, "Trends in Privatization and Managed Competition: National Survey Results," R. W. Beck, Seattle, 1998, p.4.

Table 1 shows the remaining life of landfills by region. Most of the remaining capacity exists in the West, where land is both relatively inexpensive and abundant. The private sector handles more waste in Midwestern and Western states, and more firms operate in the West.[9] Greater capacity and more competition in the West have helped lower tip fees, compared to the East (see Table 2).[10]

Waste analysts disagree regarding who is most likely to privatize. A recent survey by Houston's Public Works and Engineering Department showed that only 13 of the 30 largest U.S. cities own a landfill.[11] Two (Fort Worth and Austin) of those 13 have privatized their landfill operations; a third (Dallas) is currently considering privatization. On the other hand, some public-works officials suggest that small and rural governments are more likely to privatize their landfills.[12] These governments' budgets are the hardest hit by new regulations, especially when facilities face closure or require expansion.

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8 As stated in the *Directory of Solid Waste Disposal* (p. 13), "Private firms, with access to capital markets and more geographic range, have done a better job of developing larger and newer landfills."

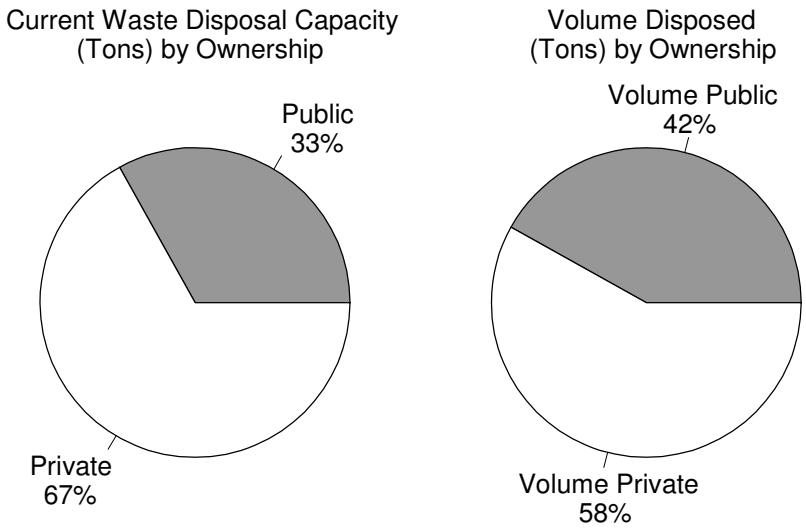
9 Jim Thompson Jr., President, Chartwell Information Publishers, interview with authors, February 1999.

10 "Solid Waste Price Index," *Solid Waste Digest*, vol. 8, no. 11 (November 1998), p. 1.

11 City of Houston, Public Works and Engineering Department, *Survey of Large Cities' Solid Waste Management Systems,* revised April 1999.

12 John Hadfield, Executive Director, Southeastern Public Service Authority, interview with authors, March 1999, www.spsa.com.

Figure 2



Source: *Directory of Solid Waste Disposal* (Alexandria, Va.: Chartwell Information Publishers, 1998), pp. 11 and 13.

Table 1: Average Landfill Life by Region

Region	Remaining Landfill Years
Northeast	4
Midwest	12
Southeast Central	14.5
Mid-Atlantic	15
South Atlantic	15.6
Pacific West	16
Mountain West	54

Source: Lynn Scarlett, *Solid Waste Recycling Costs: Issues and Answers,* Reason Public Policy Institute Policy Study No. 193 (Los Angeles: Reason Public Policy Institute, August 1995), p. 2.

Table 2: Average Tipping Fees by Region

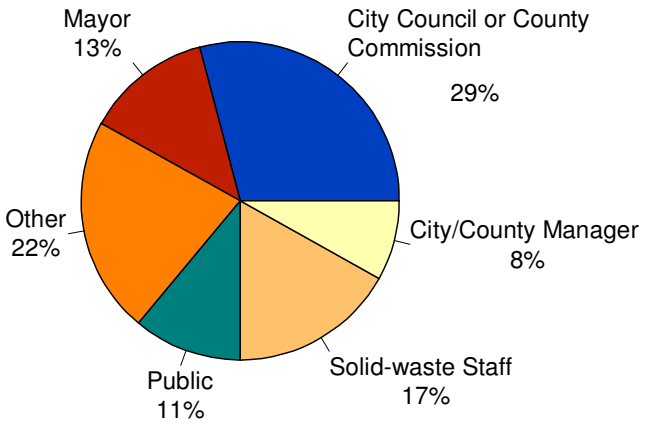
Region	Price
Northeast	$57.34
Southern	$34.33
Midwest	$31.79
Western	$22.24
Pacific	$34.78

Source: "Solid Waste Price Index," *Solid Waste Digest,* vol. 8, no. 11 (November 1998), p.1.

However, small and rural governments are not alone. Many large and urban areas, as well as county governments, are opting to privatize at least some aspects of their landfills. Counties may be more likely to privatize than cities because private firms are more often attracted to the larger facilities that counties often own.[13] Also, counties came to the task of disposing of solid waste much later than cities did, so they may be less likely to think of government ownership and operation as the norm.[14]

Figure 3 shows the driving forces for MSW privatization within local governments. A 1998 R. W. Beck survey revealed that in over one-quarter of the privatization cases, city councils or county commissions spearheaded privatization initiatives. Solid-waste management officials are the driving force behind privatization 17 percent of the time.

Figure 3: Driving Forces of Privatization



Source: Jonathan Burgiel, "Trends in Privatization and Managed Competition: National Survey Results," R. W. Beck, Seattle, 1998, p.6.

Privatization trends reach across size and location of municipalities. Changing circumstances often make public officials more open to alternatives such as privatization. Landfills do not last forever. In this context, government officials must choose whether to expand current facilities or close them and either construct new ones or use landfills owned by others. Each choice, especially constructing a landfill at a new site, requires substantial time as well as political and financial capital.

Before Subtitle D regulations, government ownership and operation of landfills just large enough to meet the needs of the community often made economic (and political) sense. However, with the increase in costs, this approach is often not practical. Construction of "megafills," or regional facilities, is a growing trend. These megafills, which are so large that they often serve a region rather than a single city or county, take advantage of economies of scale—landfills get cheaper (in terms of unit costs) the larger they get (up to a point).[15]

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[13] Grant Brimhall, Director of Strategic Services, Municipal Resource Consultants, interview with authors, March 1999, www.mrc-usa.com.

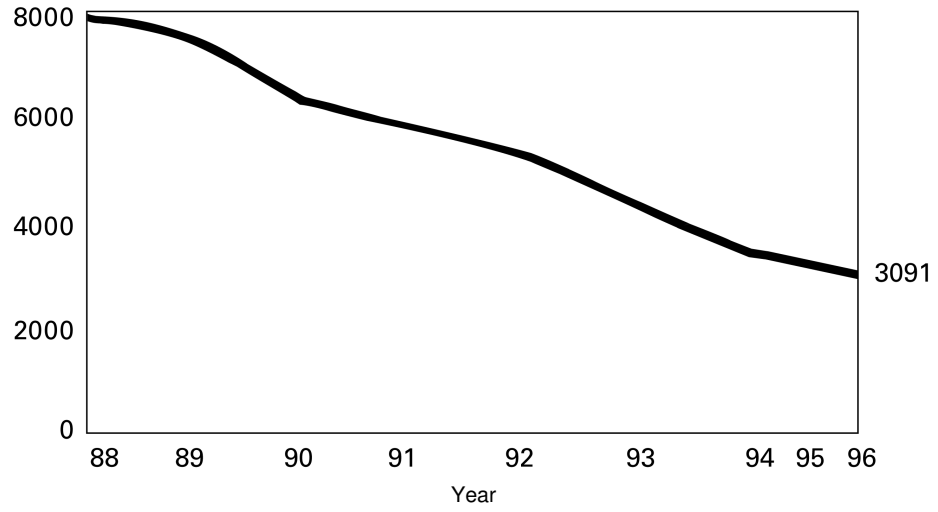
[14] Ulysses Ford, President, SDC Consulting, interview with authors, May 1999.

[15] Economies of scale drive down the unit costs of constructing and operating landfills, but because megafills serve a larger area, transportation costs go up. The size of the region a landfill can serve where the landfill-cost reductions are

While megafills may be more cost-effective on a per-ton basis to build and operate, they also require more up-front money to build. And local governments have lots of other projects chasing these same capital dollars—hence, the drive for private ownership of landfills. Private firms often have greater access to capital, enabling them to construct these megafills. Faced with limited current landfill space and perennial fiscal constraints, municipalities have begun to examine the potential of private landfills.

Figure 4 shows the declining trend in the number of landfills in the United States over several years. Two basic factors explain this decline. First, Subtitle D regulations have forced the closure of many landfills where owners are unwilling or unable to finance upgrades to comply. Many of these sites have been replaced by megafills, which serve the same area previously served by multiple, smaller, single-jurisdiction landfills. Second, public opposition to the siting of landfills (dubbed the "not-in-my-backyard" phenomenon) is increasingly a challenge in finding locations for new landfills. For many public officials, the higher transport costs of using a regional facility may be more attractive than the protracted political or even legal battles that building their own new landfill might entail.[16] Of course, private firms have difficulty siting landfills as well, and there are siting problems with transfer stations used when solid waste is hauled longer distances. But the private firms can more easily canvass a region for sites, not being bound by jurisdictional limits.

Figure 4: Number of Landfills in the U.S.



Source: U.S. Environmental Protection Agency Web site, www.epa.gov/epaoswer/non-hw/muncpl/factbook/internet/lanf/ldf.htm, created from *BioCycle Magazine,* April issues, 1989–1997.

greater than the increased transport costs will probably vary based on local geography, transport networks, labor laws, regulations, and industry conditions, among other factors. For some municipalities, long-haul companies offer competitive rates and an attractive alternative to local siting issues. Anne Magnuson, "Issues in Landfilling," *MSW Management,* (December 1999), p. 80. Examples exist of cost-effective transport of solid waste to landfills over substantial distances—witness controversies in Virginia and Pennsylvania over imports of solid waste across state lines. "Remember the Stranded Garbage Barge," *Public Works,* (August 1999), p. 12. For documentation of legislative efforts in 1998 and 1999 to control interstate shipments of trash, see Jennifer Campbell, "Flow Control and Congress: The Sequel," *Government Finance Review,* vol. 15, no. 4 (1999), pp. 62.

[16] Jonathan Burgiel, Director, Solid Waste Management Services, R. W. Beck, interview with authors, August 1999.

Part 3

The Structure of the Waste Industry and Issues of Competition and Policy

One major concern about privatization is the potential effects of consolidation on competition, service quality, and costs. The 1980s brought corporate downsizing and a swell of mergers. Almost every industry in the United States has experienced these trends. As capital markets have grown and technologies have changed, larger firms often offer greater potential efficiencies. The solid-waste-disposal community is no different; yet some merger critics are concerned that one or two firms will gain so much market share that competition will be stifled.

Table 3 documents the structure of the MSW industry following several years of upheaval that have resulted in numerous mergers. (The table does not include results of the recent megamergers between Waste Management and USA Waste Systems and between Browning-Ferris Industries and Allied Waste Industries.) The market-share effects of those mergers are still evolving. The 11 firms large enough to appear on the chart control 43 percent of the market. However, even after the two megamergers, no one firm controls more than 23 percent of the market, making it difficult to uphold monopoly fears on a national level. Nonetheless, some specific jurisdictions experience little actual competition.

Table 3: Market Share* for Major Players

Firm	Market Share (%)
Waste Management	15
USA Waste Systems	8
Browning-Ferris Industries	7
Allied Waste Industries	5
Republic	2
Wheelabrator	1
Ogden Martin	1
American Disposal	1
Rumpke Waste	1
American Refuse	1
Superior Services	1
All Others	57

Source: Directory of Solid Waste Disposal (Alexandria, Virginia: Chartwell Information Publishers, 1998), p.15.

*Ranked by volume of intake (tons).

The concern of many solid-waste officials about consolidation and competition in the solid-waste industry was the subject of several sessions at the July 1999 planning and management meeting of the Solid Waste Association of North America (SWANA). Speakers expressed an array of concerns about consolidation that mostly boiled down to fears of monopoly pricing and predatory pricing in response to entry. Speakers also suggested methods of dealing with such problems, including (1) being a better "shopper" and using contract provisions to ensure competition and give recourse if acquisitions eliminate competition in a region; (2) taking steps to ensure that smaller firms can continue to compete in the market (such as dividing contracts, helping smaller firms with training and capital, or using joint-venture partnerships); and (3) not privatizing if there is no competition in the region.

On a local level, there can be problems with market power by one firm. With big mergers, the investment press often assumes that mergers will allow price increases to boost revenues.[17] Yet in most cases, those predicted outcomes don't seem to occur—no data show that mergers have led to aggregate price increases (however, actual outcomes are highly location specific).[18] Landfill tip fees reveal only part of the total solid-waste disposal costs to the customer, but data from the Northeast, where concentration in the industry is arguably most severe, show tipping fees falling from 1993 to 1997. Recall that three firms (Waste Management–USA Waste Systems, Browning-Ferris–Allied Waste, and Republic) dominate the waste industry. These firms are the major "brands" that operate nationwide, but they control at most 37 percent of the total market, leaving room for competition.[19] In other words, the waste industry has several very large providers and many small and midsize providers.[20]

Fears that large national landfill companies—or a regional one that controls a local market—can use that power to stifle competition rest on a static view of the economy, one at odds with the way markets generally function.

Fears that large national landfill companies—or a regional one that controls a local market—can use that power to stifle competition rest on a static view of the economy, one at odds with the way markets generally function. In the short run, a firm might use its control of a geographic market to raise prices. In response, however, other firms would start to look at building a competing facility, or operators of existing (though possibly more distant) facilities would look for ways to make transporting waste to them or using new waste-handling technologies (other than landfills) economical for local jurisdictions. For example, when Cincinnati closed its own landfill, it began hauling the city's waste to a private landfill in Kentucky. Hauling increased

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[17] See, for example, J. Bailey, "USA Waste is on a Mission to Expand in Trash Business," *Wall Street Journal,* May 15, 1998; Goldman Sachs, "Waste Management Inc.," *Investment Research,* August 10, 1998.

[18] Eileen B. Berenyi and Marc J. Rogoff, "Is the Waste-to-Energy Industry Dead?" *MSW Management,* (December 1999), p. 72, figure 1.

[19] Indeed, with the largest mergers, the Department of Justice has ordered firms to divest some operations, the purchase of which strengthens smaller rival firms.

[20] Peter Anderson, of Recycle Worlds Consulting, argues that private firms only recently achieved control of sufficient landfills to begin using market power to raise prices. He sees the Wall Street beliefs that firms will start to raise prices after the recent round of mergers as an indication that only now will we start to see the effects of market power. Interview with authors, August 1999. Also, see his article "Endgame! Consolidation and Competition in the Solid Waste Industry," *MSW Management,* (December 1999), pp. 24–29.

transportation costs, which encouraged the city to replace equipment and redesign procedures to dramatically decrease the number of trips necessary and keep costs in check.[21]

Of course, the costs of building a new landfill have been increasing, making entry more difficult. Yet we still see entry on a continual basis, primarily as collection firms get into the disposal business. Transportation costs are declining throughout the economy, and transporters of bulk goods like solid waste enjoy economies of scale, so the geographic area that has to be controlled to successfully exert market power is ever growing—a moving target that creates opportunities for competing facilities. When San Diego County officials sold all of the county's operating landfills to one firm, they did so knowing that cities in the county could economically transport their waste to neighboring counties' landfills (all two hours or more away) if the firm raised prices very much.[22] However, all of this could change dramatically if current efforts by some states to impose aspects of flow control succeed.[23] Other governments might impose similar controls, and the ability of the market to manage solid waste would be significantly curtailed.

According to Credit Suisse First Boston analyst Michael Hoffman, "the great equalizer in the garbage business is the willingness of someone to drive a prescribed distance to take business away from you."[24] The growth of interstate shipments of solid waste and the diversion of waste from facilities built to rely on flow control show that competitive alternatives often arise.[25] The would-be monopolist can try to squeeze competitors, but that almost never works in the long run. The commercial sector and some government customers often will pay more in the short run to improve competition in the long run. As Hoffman points out, competition has a way of arising to prevent price gouging, and consolidation improves profits more from internal efficiencies than from higher prices.[26] The bottom line is that competition in most locations continues as new firms enter the market in new forms over time.

Most solid-waste firms have multiple operating divisions, involved in every aspect of the industry—collection, hauling, recycling, disposal, and so on. Opponents of privatization suggest that this structure will lead to "vertical integration," in which one firm controls every aspect of a region's solid-waste disposal needs and uses that control to raise prices.[27] Although it is possible for one firm to control every aspect of waste management, this problem may be addressed by contracting strategies that ensure competition, or through allowing open access. Policy makers can choose not to give one firm control of all services, avoiding potential problems associated with vertical integration. For example, the Delaware Solid Waste Authority

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21 "City Finds Simple Answer to Refuse Collection Dilemma," *Public Works,* (October 1999), pp. 24–25.

22 Carol Conner, Program Manager, Competition and Reengineering Group, Chief Administrator's Office, San Diego County, interviews with author, August 1999.

23 "Remember the Stranded Garbage Barge," p. 12.

24 Cheryl Dunson, "Consolidation: Rearranging the Pieces," *Waste Age,* (July 1999), p. 55.

25 For example, two megafills in the Southern California desert economically dispose of trash that must travel very long distances to get there—one is nearly 200 miles from Los Angeles, and the other is even further away. "Final Approval Granted for Desert Landfill," *Los Angeles Times,* December 16, 1999, p. A-47.

26 Dunson, "Consolidation," p.55.

27 Peter Anderson points out that a vertically integrated firm can drive up rival collection firms' costs by using their control of disposal facilities to give rival firms' loads "white glove" inspection treatment or send their trucks to long queues at the scale house. But he also says that commercial customers (who generate roughly two-thirds of the waste) are willing to pay higher prices in the short run to improve competition in the long run.

uses contracts with a variety of large and small firms to manage collection and disposal of the region's waste.[28] Contracts may stipulate renegotiation or rebidding if a merger brings all services under one firm.[29]

Other critics of vertically integrated megafirms fear that they have little incentive to divert waste from landfills (with high profit potential) to recycling, composting, or other waste-conversion pathways (with lower profit potential), thereby jeopardizing public-sector waste-diversion goals. Again, contracts with these firms can stipulate various waste-diversion requirements or include diversion among contract-performance criteria. Using competitive providers and creating submarkets are techniques explored in the "Case Studies and Best Practices" section below.

Policy makers should also keep in mind that vertical integration can offer some advantages through better coordination and efficiencies of scope.

Vertical integration can be more of a problem for governments that do not own the landfills they use. They do not have contracting control and must rely on their ability to shop for landfill services in the market. Siting and permitting for landfills is an expensive and uncertain process, so there is no guarantee that competing landfills will be available. And, while transporting trash is economical over growing distances, legislative efforts to control interstate shipments of trash place that option at risk.[30] But a number of government interventions in the landfill market can inhibit the kind of competition and choices that governments need to avoid problems with vertical integration. In the long run, public-policy changes to make the landfill market more competitive, such as limiting restrictions on entry (new landfills) as much as possible and avoiding restricting market flows of solid waste, will reduce the likelihood of problems from vertical integration.

Policy makers should also keep in mind that vertical integration can offer some advantages through better coordination and efficiencies of scope. In situations where two or more vertically integrated firms compete to serve an area, internal efficiencies and competition may drive prices down. Evaluating these possibilities and the techniques for ensuring that cost savings benefit consumers should be part of any contracting or privatization process.

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[28] Dunson, "Consolidation," p. 61.

[29] Constance Hornig, "Consents to Sale of Local MSW Contractors and Competitive and Cost Threats to Public Integrated MSW Systems," paper presented at SWANA Wastecon, October 1999.

[30] Campbell, "Flow Control and Congress."

Part 4

Landfill-management Options

A number of options exist for managing landfills, each with its own strengths and weaknesses. Public officials have to balance competing interests. For example, load-shedding, in which a government stops providing a service altogether, may lead to disruption of service if the process is not coordinated with private firms that will be stepping in to provide services, and that may lead to public outcries for intervention. This upheaval may undermine any chance to improve service quality and efficiency. Since government officials continue to have a responsibility to ensure basic sanitation services, even if they do not directly provide the services, they must oversee the actions of private firms providing those services.

Local governments typically respond to pressures of landfill management and changes in the industry in one (or a combination) of five ways. These include: (1) government ownership and operation of facilities; (2) cooperative agreements between public and private entities; (3) government ownership and private operation of facilities; (4) complete asset divestiture to the private sector; and (5) avoiding government landfill ownership and operational contracts by relying on "merchant" facilities.

A. Government Ownership and Operation of Facilities

Some governments opt not to privatize either ownership or ongoing operations. In 1998, 52 percent of U.S. landfills serving communities with 100,000 or more residents were publicly owned and operated.[31] In these cases, the public sector attempts to improve efficiency internally. Under public ownership and operation, governments enjoy some benefits. They maintain:

- All assets (landfill, equipment);
- Complete control of their own solid-waste stream, including the prices they charge (tipping fees)[32];
- Accountability for performance of their own internal systems;
- Control over capacity development and planning;
- Control over compliance with regulations;
- Organizational knowledge and continuity without interruption; and
- A long history of actual expenditures, so likely budget needs are well known.

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[31] Burgiel, "Trends in Privatization and Managed Competition."

[32] If a government depends on other jurisdictions bringing their waste to its facility (for example, a county facility relying on cities' waste streams), then its ability to control tipping fees will be constrained by competition from other landfills.

On the other hand, this arrangement has some disadvantages. For example, the government:

- Maintains all operational, environmental, closure, postclosure, and other liabilities;
- Maintains all responsibility for operating costs;
- Remains responsible for all capital needs:
- Continues to grapple directly with not-in-my-backyard (NIMBY) and other political pressures;
- May face inertia or slow results from re-engineering efforts; and
- May experience reintroduction of inefficiencies over time in the absence of competition and/or fundamental changes in organizational incentives.

B. Cooperative Agreements Between Public and Private Entities

In a typical form of public-private partnership, landfill operations are separated into different divisions. The local government operates some functions; the private firm operates other, often capital-intensive functions. For example, private firms may operate compaction, construction, and soil top-off, while local governments operate scales, groundwater monitoring, or methane gas recovery. This kind of partnership offers several advantages. Governments:

- Maintain all assets;
- Maintain control of their solid-waste stream and the prices they charge;
- Share risks and liabilities;
- Maintain organizational knowledge and continuity without interruption; and
- Tap into private-sector innovation, experience, and knowledge.

On the other hand, this structure also has some disadvantages. Governments:

- Maintain some liabilities;
- Remain responsible for all capital needs;
- Maintain many operating costs;
- May face difficult agreement-negotiation processes; and
- Continue to grapple directly with NIMBY and other political pressures.

C. Government Ownership and Private Operation of Facilities

Across the United States, local governments use contracting for solid-waste services. About 10 percent of publicly owned landfills are managed or operated by private firms. This arrangement offers several advantages. Governments:

- Maintain all assets;
- Maintain complete oversight of the system;
- Maintain or enforce regulatory authority;
- Create a context for running facilities like a business;

- Tap into a breadth of private-sector experience and knowledge;
- May specify in the contract controls on their solid-waste stream and the prices charged;
- Benefit from innovative techniques without having to jump through bureaucratic procurement hoops; and
- Take advantage of competitive opportunities to save money and/or improve services.

There are some disadvantages as well. Governments:

- Maintain some liabilities;
- Remain responsible for most capital needs;
- May face difficulties maintaining operating expertise on their own staff;
- Experience two-pronged costs—contract costs and costs of staff to monitor the contract; and
- May experience lengthy/costly contract-negotiation processes.[33]

When contracting, "government is still providing the service, but it no longer is actually producing it."[34] Contract rebidding can create an environment of perpetual competition, enhancing choice of service and opportunities for lowering costs. Cost savings may result in service enhancements in other areas, such as fee stabilization or environmental improvements, since more money can be directed to these programs.[35]

D. Complete Asset Divestiture to the Private Sector

Under divestiture, or "service transfer," a service once provided and produced by a government is now provided and produced by someone else.[36] Even though a government no longer provides the service, it is still responsible for monitoring and planning and rarely completely abandons a service. This form of privatization is relatively rare in the solid-waste disposal arena, though many private firms have built and operated landfills as "merchant" facilities independent of any government asset sale or operational contract. Divestiture has some advantages. Governments:

- Receive an immediate cash flow from asset sales, which can be used to eliminate debt;[37]
- May reduce annual operating costs due to lower fees from private operations and lower staffing requirements (since in-house staff are only needed for planning and monitoring);
- Receive property, income, and sales tax revenues; and
- May experience reduced risks and liabilities.

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[33] The contract offers the government the opportunity to manage all of these disadvantages to some degree. See the case study of Fort Worth below.

[34] Charles Van Eaton, Michael Mills, and Robert Daddow, *Revitalization of the American City: A Market Perspective for Detroit,* Heartland Institute Policy Study No. 50 (Chicago: Heartland Institute, 1992), p. 48; www.heartland.org.

[35] Cost savings are discussed in Part 5.

[36] Van Eaton, Mills, and Daddow, *Revitalization of the American City*, p. 8.

[37] The asset value of landfills will become a more important issue in the next few years. New accounting standards issued by the Government Accounting Standards Board (Statement No. 34, www.gasb.org) will require all local governments to account for the value of assets they own as well as financial liabilities. That will make far more transparent to public officials the ability to offset program costs or cash liabilities by selling assets (such as landfills).

On the other hand, divestiture has some disadvantages. Governments:

- Must rely on others to fulfill MSW needs;[38]
- May retain some long-term liabilities;
- Lose some institutional knowledge of the service area;
- May face difficulties calculating asset values; and
- May experience legal costs associated with contract negotiations and asset sales.

E. Merchant Facilities

Some local governments have never been in the solid-waste disposal business or have closed their landfills. Instead, they rely on private landfills that simply charge for their use. These governments avoid raising capital for landfill construction; they let the private sector make the initial investment. Especially for small communities, raising the capital to build a modern landfill that complies with all regulations is difficult. And, since the private landfills often are larger and have lower per-unit disposal costs, many communities find it cost-effective to bear the transport costs of shipping waste to sometimes more distant private landfills.[39]

A slight variation on this case is governments that need additional capacity but do not want to build or own a new facility. They simply let it be known that they are shopping for capacity and let the private sector take all of the risk of siting, building, and operating a landfill to which the government can send its solid waste. Using merchant facilities has some advantages. Governments:

- Face no operational or ownership liabilities;
- Do not have to worry about siting and other political issues that accompany landfill ownership and operation;
- Need few solid-waste staff;
- Have minimal long-run capacity planning concerns; and
- Can freely choose in both the short and long run among landfills and other waste-handling options.

There are some disadvantages as well. Governments:

- Must rely on others to fulfill MSW needs;
- Must rely on their shopping and negotiating skills to keep costs down; and
- Must start if they want to commence landfill operations in the future.

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[38] However, sales agreements often include service guarantees and pricing arrangements for the selling government.

[39] Hadfield, interview with authors.

Part 5

Why Privatize? Theory and Application

Like all policy decisions, solid-waste management decisions involve trade-offs. As Lowell Patterson, chairman of the solid-waste management committee of the American Public Works Association, argues, solid-waste management is a vital public responsibility, but ownership and operation of solid-waste facilities is not.[40] Through privatization, public officials are often trying to achieve effective and efficient use of scarce resources. Privatization decisions do not eliminate services. Rather, they create alternative ways of providing those services.

Respondents to a 1998 R. W. Beck survey indicated that the primary reason to privatize landfill operations is cost savings, cited by 44 percent (see Figure 5).[41] Nineteen percent of respondents cited efficiency as the primary motivation. Other research points to several factors that propel the drive for privatization.[42]

A. Efficiency—"The Purchaser-provider Split"

Management guru Peter Drucker suggests that the "purpose of government is to make fundamental decisions and to make them effectively… in other words, to govern."[43] Public officials often have two interests. On the one hand, they have an interest in producing public services. On the other hand, once placed in charge of delivering these services, public officials develop personal interests in continuing to provide those services themselves.[44]

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40 Speech at SWANA planning and management conference, New Orleans, Louisiana, July 1999.

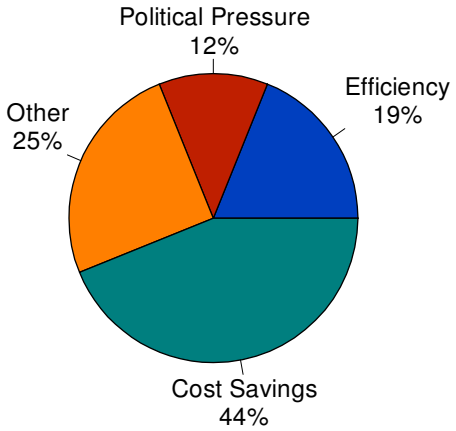
41 Burgiel, "Trends in Privatization and Managed Competition."

42 See, for example, William D. Eggers et al., *Cutting Local Government Costs Through Competition and Privatization* (Los Angeles: Reason Public Policy Institute, California Chamber of Commerce, California Taxpayers Association, and Howard Jarvis Taxpayers Association, 1997); Charles Van Eaton, "Privatization: Theory and Application for Michigan," Michigan State Chamber of Commerce Foundation, Lansing, 1988; and Lynn Scarlett and J. M. Sloan, *Solid Waste Management: A Guide for Competitive Contracting for Collection,* Reason Public Policy Institute How-to Guide No. 16 (Los Angeles: Reason Public Policy Institute, September 1996).

43 Peter Drucker, *The Age of Discontinuity* (New York: Harper & Row, 1969), p. 233.

44 Charles Wolf, in *Markets or Governments: Choosing between Imperfect Alternatives* (Cambridge, Massachusetts: MIT Press, 1993), pp. 68–79, characterizes this behavior as a type of "internality" or nonmarket failure akin to standard economic theory of market failure.

Figure 5: Reason for Privatization



Jonathan Burgiel, "Trends in Privatization and Managed Competition: National Survey Results," R. W. Beck, Seattle, 1998, www.rwbeck.com, p. 6.

Public-management experts note the potential for conflict when governments try to be both policy maker and service provider, an insight consistent with the Drucker statement. Government executives play dual roles: as policy makers, they are buyers who think about the interests of the taxpayers and consumers; as service providers, they are sellers who think about internal organizational interests.[45] This tension often results in a focus on process, with the consequence that service "price" is determined by cost (or other political considerations that lead to decisions to subsidize service delivery). But cost itself is determined by process, and process is determined by political considerations rather than cost minimization.

For the private sector, the focus is on product and profit, with firms attempting to receive the highest attainable price for any given quantity of output. They then determine the lowest cost at which the desired output can be produced. This focus results in constant efforts to reduce costs: "In the private sector, price determines cost; cost does not determine price."[46]

To minimize their process focus, with its attendant cost-plus consequences, government managers can "shop around" for the best "price." But this shopping is possible only when the purchaser and provider functions are split. Through a separation of service-purchaser functions from service-provider functions, policy and regulatory functions are separated from service delivery.[47] Economist Charles Van Eaton notes that "splitting policy functions from service delivery creates incentives for governments to become more discriminating consumers by also looking beyond government monopoly providers to a wide range of public and private providers."[48] The desired end of this functional split is to free policy makers from having to decide between the public's best interest and the direct interests of the public agency.[49]

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45 Ted Kolderie and Jody Hauer, "Contracting as an Approach to Public Management," *Municipal Management,* vol. 6, no. 4 (Spring 1984), pp. 87–96; and Wolf, *Markets or Governments*.

46 Van Eaton, "Privatization," p. 17.

47 For more details on the "purchaser/provider split" see Eggers et al., *Cutting Local Government Costs,* pp. 131–32.

48 Quoted ibid., p. 131.

49 This is a basic observation of public-choice literature building on William Niskanen's theory of bureaucracy. For a survey of the literature on the topic, see Dennis C. Mueller, *Public Choice II* (Cambridge, Massachusetts: Cambridge University Press, 1989), chap. 3.

B. Accountability—"The Power of the Contract"

Opponents of privatization often fear loss of control or regulatory authority. However, these concerns may be addressed through contract provisions. In the privatization process, governments set service standards, awarding contracts only to producers that meet established goals. In other words, governments, through the contractor-selection process, "steer rather than row."[50]

Contractual power may enhance control in another important way: through explicit and measurable performance standards tied to contractor payments, government managers can hold private providers accountable for their performance.[51] If private firms fail to do their job or to meet performance standards, they can lose revenues or, ultimately, the contract. Such performance-based contracts in competitive markets give governments more control over a contractor than they may have over internal operations and employees.[52]

The process of contracting does not relieve government officials of responsibility—contracts, like any other policy tool, can result in poor outcomes if they are not structured well. From the writing of the request for qualifications to the process of monitoring performance, the contract must incorporate best practices from more-experienced jurisdictions as well as technical, financial, and legal input from responsible public officials.

C. Debt—"Eliminate It!"

Some officials see privatization as a tool to reduce debt. Many cities turned to alternative methods of disposal (incinerators, for example) in the 1980s to reduce the amount of waste going to landfills and to take advantage of new energy markets created by federal law. They incurred high debt levels to finance these projects, resulting in high debt payments. In addition, Subtitle D regulations forced local governments to utilize new technologies at landfills, raising capital costs and increasing debt. Privatization may ease the burden of debt payments.

Tipping fees are currently the primary source of revenue for landfills. Fees at privately owned facilities cover all costs. However, tipping fees at publicly owned facilities often do not represent actual capital and operating costs. "A valid comparison [of public and private costs] must count the cost of central administration, of buildings and insurance, of recruitment and training, and of fringe benefits. Even more important, it must count the cost of capital. These calculations, routine in private business, are by no means the norm in public activity."[53]

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[50] A popular phrase coined by E. S. Savas in *Privatization: The Key to Better Government* (Chatham, N.J.: Chatham House Publishers, 1987), p. 290.

[51] Hadfield points out that the long-term environmental liabilities inherent in landfills present some special challenges for negotiating performance-based agreements. But those challenges can be managed. Valuable lessons can be learned from the Department of Energy's performance-based contracts with private firms to manage and clean up DOE superfund sites. Interview with authors.

[52] See William D. Eggers, *Performance-Based Contracting: Designing State-of-the-Art Contract Administration and Monitoring Systems,* Reason Public Policy Institute How-to Guide No. 17 (Los Angeles: Reason Public Policy Institute, 1997).

[53] Madsen Pirie, *Privatization: Theory, Practice, and Choice* (London: Wildwood House, 1998), p. 21.

"Mired in Debt"

In the early 1980's, citizens began to fear that waste discarded would exceed disposal capacity. States passed hundreds of laws requiring local communities to plan for their waste disposal needs, with an emphasis on waste reduction and recycling.

Many states created a list of "desirable" waste management options. At the top of the list was waste reduction; landfilling was near the bottom. The 1980s saw many communities turn to waste-to-energy facilities to meet disposal needs. However, extensive air-pollution and other restrictions pushed up the costs of these facilities, leaving them less cost-competitive with state-of-the-art landfills.[54]

Many communities then initiated flow control measures, requiring local MSW to go to designated facilities. The Supreme Court struck down flow control via the commerce clause of the U.S. Constitution in the *Carbone* decision.[55]

Many of these facilities were built with public bonds, and since it is often not economical to send MSW to them, many are running deficits and are mired in debt. Many communities are considering privatization of these facilities to alleviate debt. Private owners are better able to import waste and keep the facilities operating.

Full-cost-accounting (FCA) "provides the basis for comparing costs with those in the private sector and assisting in the decision-making process for privatization."[56] FCA, unlike cash-flow accounting, considers direct, indirect (overhead), up-front (past), and back-end (future) expenses.[57] It enables officials to make more-informed decisions about their programs, as it illustrates the "full cost" of operation against alternative waste-management options. Both the Environmental Protection Agency (EPA) and the International City/County Management Association (ICMA) have advocated the use of FCA for solid-waste management. FCA is particularly valuable in making privatization decisions, because it allows for a full comparison of costs between public and private services.

An important feature of FCA is its ability to capture overhead costs. These are the management and support costs of running a solid-waste program. The ICMA and the EPA have identified certain operational activities that must be included in a full-cost accounting (see Table 4). FCA also allows costs to be broken down between exclusive and shared costs. Often, public-sector accounting does not account for shared (overhead) costs.[58]

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54 For some background, see Berenyi and Rogoff, "Is the Waste-to-Energy Industry Dead?" pp. 66–75.

55 *C&A Carbone, Inc. v. Town of Clarkstown*, 511 U.S. 383 (1994); 114 Sup. Ct. 1677 (1994). For a review of the legal and policy background leading up to the decision, and subsequent policy developments, see Catherine Wilt and Gary Davis, "Local Control Wasting Away: Will Congress Level the Solid Waste Playing Field?" *Policy Studies Journal,* vol. 24, no. 1 (1996), pp. 123–34. For a survey of legislation considered by the 106th Congress in 1998 and 1999 to address flow control and interstate shipping of solid waste, see Campbell, "Flow Control and Congress."

56 Barbara Yuhas, *Full Cost Accounting for Solid Waste Services* (Washington, D.C.: International City/County Management Association, 1998), p. 7.

57 U.S. Environmental Protection Agency, *Questions and Answers About Full Cost Accounting* (530-F-98-003), 1998, p. 1; U.S. Environmental Protection Agency, *Full Cost Accounting for Municipal Solid Waste Management: A Handbook* (530-R-95-041), 1997, pp. 28–29.

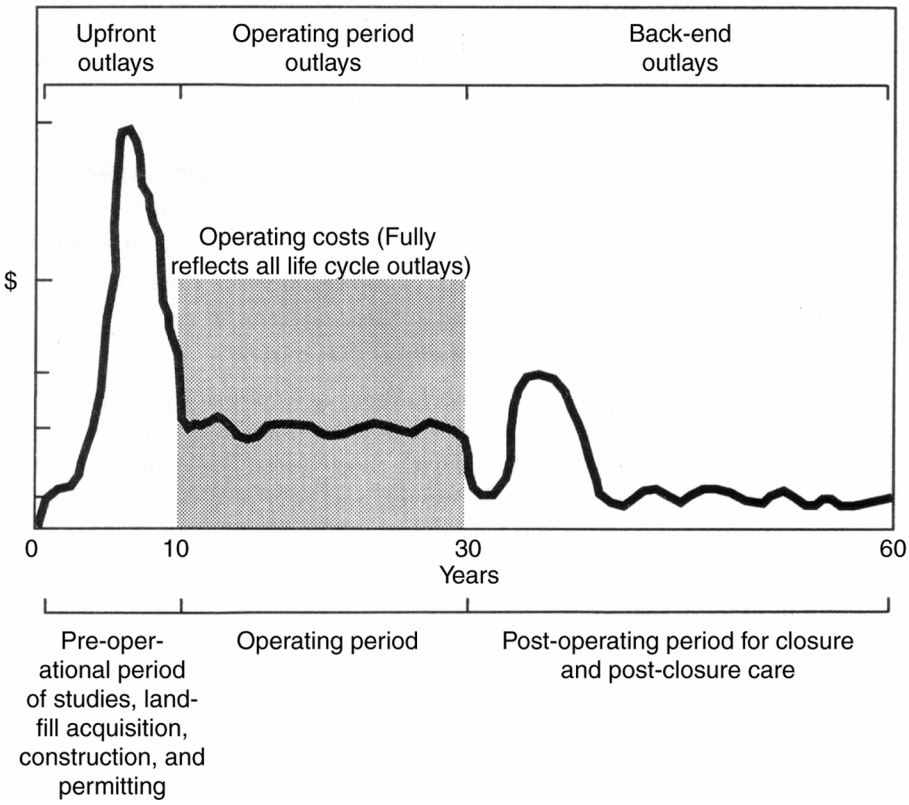
58 Some overhead costs do not go away with privatization—for example, the allocated share of public buildings, legal staff time, and higher officials' salaries. But that is a function of high-level management decisions not to adjust those assets or services as the demand upon them is diminished. Sound management requires using FCA in making service-delivery decisions and dealing with the macrolevel impact of those decisions on the appropriate level.

Table 4: Types of Shared Overhead Costs Identified by Full-Cost Accounting	
Management	Purchasing
Executive Oversight	Records Management
Personnel	Training Expenses
Billing Services	Clerical Support
Maintenance	Payroll and Accounting
Data Management	Human Resources
Advisory Committees and Coordinating Bodies	Legal

Sources: U.S. Environmental Protection Agency, *Questions and Answers About Full Cost Accounting* (530-F-98-003), 1998; U.S. Environmental Protection Agency, *Full Cost Accounting for Municipal Solid Waste Management: A Handbook* (530-R-95-041), 1997.

EPA and ICMA handbooks also note that FCA accounts for full life-cycle costs involved in landfilling (up-front, back-end, hidden, overhead, and operating costs). Figure 6 illustrates the flow of outlays over a typical landfill life cycle. Cash outlays generally peak at the front and back ends of operation. FCA fully reflects all life-cycle outlays; cash accounting used by many governments does not. Furthermore, FCA makes it possible to compare public and private expenditures, facilitating an efficient allocation of resources.

Figure 6: Illustration of Landfill Life-Cycle Outlays and Costs

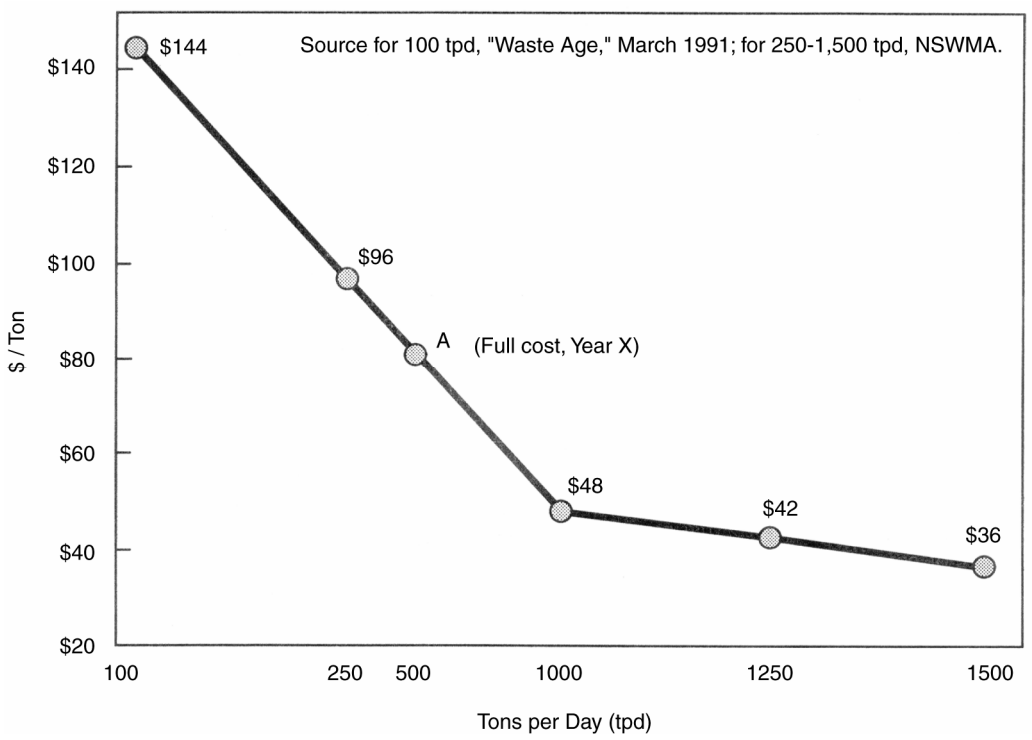


Source: U.S. Environmental Protection Agency, *Full Cost Accounting for Municipal Solid Waste Management: A Handbook* (530-R-95-041), 1997, exhibit 4-1, p. 29.

D. Access to Capital—"Show Me the Money!"

In addition to rising costs from Subtitle D regulations, growing interest in privatization is arising from public-sector limitations on access to capital. Some local governments are up against state caps on tax-exempt borrowing; others cannot get voters to approve new general-obligation bond issues.[59] Most governments own and operate a facility that meets or just exceeds their MSW needs. Operations at these sites may not benefit from economies of scale, making costs higher than at larger facilities. Figure 7 illustrates the advantages of economies of scale—tip fees are dramatically lower on a per-ton basis at larger sites. Megafills also can serve multiple customers, meeting regional MSW needs.

Figure 7: Economies of Scale at Landfills



Source: U.S. Environmental Protection Agency, *Full Cost Accounting for Municipal Solid Waste Management: A Handbook* (530-R-95-041), 1997, exhibit 4-1, p. 29.

Yet local governments have difficulty constructing megafills. These large landfills require much greater up-front capital than smaller landfills and, consequently, more tax dollars or debt. Private firms can more easily borrow against future earnings, enabling them to construct megafills, and taxpayers do not face the risks associated with the investment.

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[59] Indeed, environmental groups have tried to limit the use of tax-exempt debt to finance landfills and incinerators. "Environmentalists Urge Clinton to Veto Bill with Tax Breaks for Trash Facilities," *Solid Waste Report,* September 9, 1999, p. 276.

Local governments can, of course, attempt to form coalitions with other governments to build, own, and operate megafills. Such ventures are challenging and are complicated by difficulties associated with allocating costs and creating risk-sharing agreements. Politicians are often unwilling to expend political capital to build such agreements,[60] sometimes even if that unwillingness means greater total waste-management costs.[61] When the private sector builds a megafill, local governments become customers of the megafill, paying a tipping fee for use of the facility, rather than owning the site.

An effective innovation brings immediate gains to a private firm, while public agencies often face budget constraints and procurement rules that make it hard to experiment and even to implement proven innovations.

The infusion of capital and private-sector incentives to innovate in order to improve efficiency often leads to safer and more-efficient landfills. Private industries often allocate capital for research and development and technical training. Public solid-waste agencies also do that, but an effective innovation brings immediate gains to a private firm, while public agencies often face budget constraints and procurement rules that make it hard to experiment and even to implement proven innovations.[62] Also, firms that operate on a regional or national basis are more able than individual local governments to negotiate purchasing agreements with contractors and suppliers for better prices and access to materials and equipment.[63]

Expansion or closure of a facility or construction of a new one requires change—large capital investment, new operations, even new technologies. Privatization is often attractive as a means of coping with that change and managing risks.

E. Liability—"Don't Hate It; Use It!"

Another major drive behind privatization is the potential reduction of liability. The privatization structure can shift some or most operational, environmental, and capital risks to the private firm.

Subtitle D contains financial assurance provisions that require owners and operators of MSW landfills (public or private) to demonstrate that adequate funds will be readily available for the costs of closure, postclosure care, and corrective action for environmental violations associated with their facilities.[64] There are several allowable alternatives that owners and operators can choose from to meet the requirements:

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60 Hadfield, interview with authors.

61 Joe Sloan, CEO of Aardvark Recycling, interview with authors, August 1999.

62 There are exceptions to this general rule of thumb. The Delaware Solid Waste Authority, a public waste-management agency, invests a substantial portion of its revenues in R&D and is a leader in introducing new technologies.

63 Kathi Mestayer, Associate, Malcolm-Pirnie, interview with authors, September 1999.

64 The authority for such rests in the amendments to part 258 of title 40 of the *Code of Federal Regulations,* under the authority of sections 1008, 4004, and 4010 of the Resource Conservation and Recovery Act, 42 U.S.C. 607, 6944, and 6949a.

- **Trust Fund:** Payments into the fund must be made annually over the term of the initial permit or over the remaining life of the landfill;
- **Surety Bond Guaranteeing Payment or Performance:** The penal sum of the bond must be in an amount at least equal to the current cost estimate of closure, postclosure care, or corrective action;
- **Letter of Credit:** This must be an irrevocable standby letter of credit, equal to the sum mentioned above;
- **Insurance:** This must guarantee that funds, in the amount mentioned above, will be available for closure, postclosure care, and corrective action;
- **Corporate Financial Test:** The owner/operator must satisfy several components:
  1. *Financial component:* (A) have a current bond rating of AAA, AA, A, or BBB as issued by Standard and Poor's or Aaa, Aa, A, or Baa as issued by Moody's, (B) have a ratio of less than 1.5 comparing total liabilities to net worth, or (C) have a ratio of greater than 0.10 comparing the sum of net income plus depreciation, depletion, and amortization, minus $10 million, to total liabilities;
  2. *Record-keeping and reporting requirements:* provide a copy of the independent certified public accountant's unqualified opinion of the owner's financial statements for the latest completed fiscal year; and
  3. *Calculation of costs to be assured:* include all cost estimates for closure, postclosure care, corrective action, and any other environmental obligation, such as hazardous-waste treatment, storage, or disposal.
- **Corporate Guarantee:** A higher-tier parent company or a firm with a "substantial business relationship" may provide a guarantee, so long as the guarantor meets the requirements of the corporate financial test. The guarantee must either establish a trust fund (see above) or pay for a third party to perform closure, postclosure care, and corrective action; or.
- **Use of Multiple Mechanisms:** One or more of the above.

Another major drive behind privatization is the potential reduction of liability. The privatization structure can shift some or most operational, environmental, and capital risks to the private firm.

Regardless of the method used, owners/operators must ensure that the amount of funds assured is sufficient to cover the costs and that they will be available in a timely fashion when needed.

Monetary liability also may be shifted via contractual obligations. If contractors fail to perform, they can be fined and/or the contract can be terminated. However, if lack of performance leads to environmental hazards or regulatory noncompliance, government officials will often be publicly held responsible—they always oversee operation of the site. These regulatory liabilities can be mitigated, but not entirely eliminated, through indemnification and other risk-management contract provisions.

Using performance measures and monitoring contracts can substantially reduce these risks. A performance-based contract provides incentives for high-quality performance.[65] Under performance-based contracts, compensation typically is tied to a specific level of service provided.

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[65] See Eggers, *Performance-Based Contracting*.

F. Summary of Privatization Motivations

A number of factors are spurring public-sector interest in landfill privatization. The growing portion of waste disposed through private-sector landfills confirms this interest. Every local government has a unique mix of reasons that influence privatization decisions. Generally, the most-common drivers of privatization are those discussed above:

- Managing liabilities;
- Improving efficiency;
- Cutting costs or debt;
- Improving access to capital; and
- Improving accountability.

Part 6

Objections to Consider

Privatization is a policy tool, not a magic wand that will make all of a public official's problems go away. Under many conditions, however, privatization can help manage a local government's solid-waste needs. But when government officials consider privatization, they should be aware of the potential pitfalls of privatization and of the objections that opponents of privatization will raise. Experience has identified the eight most-common objections and pitfalls:

A. Public-employee Union Resistance

The main source of opposition to any proposed privatization is almost always public-employee unions.[66] Their opposition often stems from a fear that privatization will result in employee layoffs. Though concern about public employees is secondary to concern about managing public assets and ensuring service quality and availability, public officials can respond to union concerns in several ways. First, they can keep employee groups fully informed about discussions of, and plans for, privatization at the outset of the decision process. Second, from the very beginning, they can plan for employee transitions. One method used by government officials to offset job loss is to incorporate incentives for rehiring public employees into any privatization contract. Other methods include early retirement, city-hiring freezes, and interdepartmental transfers.[67] Governments that use these methods report very few layoffs as a result of privatization.[68] Some local governments, notably Indianapolis, Charlotte, and Phoenix, use "managed competition" in which in-house employees bid for work against private firms. Such competitions have sometimes been politically popular but tend to be longer, far more complex, and more costly than straightforward private competitions.[69]

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[66] In smaller communities, opposition from management officials may be more important than employee resistance. Sloan, interview with authors.

[67] John O'Leary and William D. Eggers, *Privatization and Public Employees: Guidelines for Fair Treatment*, Reason Public Policy Institute How-to Guide No. 9 (Los Angeles: Reason Public Policy Institute, 1993).

[68] Studies by the U.S. Department of Labor found that privatization leads to layoffs of only 3 to 7 percent of employees. Ibid., pp. 6–7. And a study of privatizing county services in Illinois found that only 7 percent of counties who privatized services had to lay off employees. Robin A. Johnson and Norman Walzer, *Efficiency in County Government: The Role of Intergovernmental Agreements and Privatization* (Springfield: Illinois Office of the Comptroller, 1998).

[69] William D. Eggers, *Competitive Neutrality: Ensuring a Level Playing Field in Managed Competitions,* Reason Public Policy Institute How-to Guide No. 18 (Los Angeles: Reason Public Policy Institute, 1998).

B. Suspicion of the Market

If not disposed of properly, solid waste presents a hazard to community residents. Opponents of privatization argue that government is responsible for the health and safety of local residents and should not delegate that responsibility to firms motivated by profit. Ultimately, they do not believe the benefits of privatization justify the risks.

These objections reflect a misunderstanding of the market and of realities of solid-waste disposal. Nearly half the landfills in the United States are owned or operated by private firms. These facilities provide safe, efficient waste disposal—making, and continuing to make, a profit requires firms to maintain their reputation and to ensure public health and safety. If they fail, they face substantial financial losses. Public health and safety issues indicate a need for government oversight but not necessarily government provision of any specific service.

Privatization is a policy tool, not a magic wand that will make all of a public official's problems go away. Under many conditions, however, privatization can help manage a local government's solid-waste needs.

C. Service Concerns, or "Will We Be Left at the Mercy of a Contractor?"

No local government wants to find itself in a position where the contractor leaves it without service options. Imagine that service is not up to par, regulatory violations are found, and citizen complaints are rising, but the city cannot fire the contractor, because no alternative exists. This is a worrisome scenario but one avoidable with some planning and proper recognition of how contracts and markets can work.

The solid-waste industry is competitive in most of the nation—if one firm is failing to provide adequate service, the public agency can find another to replace it. Performance-based contracts let the government monitor and reward or punish performance on an ongoing basis, making it easier to nip problems in the bud, before they reach the contract-termination level. Finally, a well-designed contract should include some ultimate financial guarantee against breach (a performance bond or other surety) that will help pay for the transition to a new service provider if the current one fails to meet contract terms. But government managers should also be cautious that financial guarantees are set only as high as necessary—if set too high, they may prevent small or midsize but competent firms from participating and reduce the amount of competition, or wind up driving up the user costs bid by all participants.[70]

It is less easy for governments considering selling their landfills or relying on merchant landfills. If a government is not happy with service, quality, or prices at a privately owned facility, it may have to resort to paying higher hauling costs in order to use a competing, but more distant, landfill. Before deciding to sell a landfill or to rely solely on merchant facilities, government officials need to consider the options that will be

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[70] For more on this, see Scarlett and Sloan, *Solid Waste Management*.

available to them. Are there competing landfills available? What would it cost to use them? Is interstate shipment possible? If so, at what cost? The key is to avoid becoming a captive customer of only one service provider. When San Diego County officials decided to sell their county landfills, they factored in the reality that landfills in neighboring counties are a viable option for the cities in San Diego County. That puts competitive pressure on the new private owners of the landfills and keeps prices under control.[71]

D. Corruption

Privatization critics sometimes fear that as contracts become more lucrative, the contract-bidding process will become corrupt. If contract procedures are neither transparent nor competitive, this is a legitimate concern. However, when bidding is carried out in open competitive markets and public-sector monitoring is maintained, the prospect for corruption is small. Local government managers should keep two things in mind. First, even without privatization, vigilance against corruption is necessary. Second, privatization and contracting of services is commonplace today—the majority of local governments privatize some services. So managing proper contract procedures is part of most governments' usual business, and many other governments provide experiences to learn from. Also, as more governments contract for solid-waste services, professional consultants in the field become more experienced and more competitive, so they can offer public agencies valuable help in preventing problems with contracts.

E. Labor Strikes

No local governments want to find themselves in a position where a strike by workers at the landfill leaves them with no place to send their waste. While this can occur at a privately run facility, public employees also may strike. Research shows that the threat of strikes by private contractors is no greater than that of strikes by public-employee unions.[72] In addition, the contract can put responsibility for coping with a strike on contracting firms—they will have to find somewhere else to ship the waste, or compensate the city for the cost of doing so.

F. "Bureaucratic Creep"

Public officials must be on guard against a tendency to micromanage contractors. An input-based contract, with details of how services will be delivered, undermines the whole point of privatization—if contractors must do everything exactly the way it was done before, or as specified in detail by public officials, they are not likely to be able to cut costs or improve efficiency. With such micromanagement, the contract just creates a private-sector carbon copy of public-sector operations.[73] Instead, contracts should be based on outputs and outcomes, specifying in detail the performance measures desired and letting the contractor determine how to do the job. This allows the contractor to use private-management techniques and innovate. It also makes the contracting process simpler. Input-based contracts must be very detailed, and if the public-sector contract

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[71] Conner, interview with authors.

[72] E. S. Savas, as quoted in Van Eaton, Mills, and Daddow, *Revitalization of the American City,* p. 59.

[73] Van Eaton, "Privatization," p. 22.

manager leaves anything out, the contractor is not obligated to do it. A carefully thought-out performance-based contract need only specify the desired outcomes, how to measure them, and what the incentives are, so it is less likely to overlook crucial operational or capital needs.

G. Long-term Liability

A landfill is like a cemetery; long after it is closed, it must be maintained and monitored.[74] That long-term liability makes landfills different from most other government services. Even if the landfill is privatized, the local government will be expected by its citizens to ensure that closed facilities comply with environmental and other laws. Also, governments must be prepared to handle any unforeseen problems, such as an insolvent private owner or contract operator. Subtitle D requires that in order to be permitted, landfill operators (public or private) must provide financial assurances that they can cope with potential liabilities (see Section E of Part 5 above). Some people are concerned that some of the allowed financial assurance mechanisms are inadequate to deal with long-term liabilities,[75] but so far, the industry has mostly met its obligations and covered its liabilities. Still, some analysts have suggested that money (potentially a portion of the profit or cost savings) be placed in a sort of landfill trust fund set aside for long-term maintenance as a hedge against unforeseen risks/events.[76] When San Diego County sold its active landfills, it put $100 million in an environmental trust fund to pay for the long-term maintenance of those closed and inactive landfills that remained county owned.

H. Special Circumstances of Solid-waste Disposal

Solid-waste disposal involves unique legal, regulatory, and technical challenges. It is not as simple to privatize as solid-waste collection, for example. Therefore, many local governments carefully analyze best practices in privatizing landfills. Also, many use consultants who specialize in assisting with privatization of solid-waste services. Consultants can help ensure that contracts avoid costly technical or regulatory mistakes. But officials must remember to include the cost of consultants in overall privatization costs.

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[74] The Government Accounting Standards Board Statement No. 18 governs accounting requirements for closure and postclosure costs for municipal solid-waste landfills (MSWLFs) owned by state and local governments. The statement mandates that all of the following costs be included:

1. The cost of equipment expected to be installed and facilities expected to be constructed (based on the MSWLF operating plan) near or after the date that the MSWLF stops accepting solid waste and during the postclosure period;
2. The cost of final cover (capping) expected to be applied near or after the date that the MSWLF stops accepting solid waste; and
3. The cost of monitoring and maintaining the expected usable MSWLF area during the postclosure period.

[75] Rob Arner, H. Lanier Hickman, and Cristine Leavitt, "Dump Now, Pay Later? Landfill Financial-assurance Mechanisms are Burying the True Costs," *MSW Management,* December 1999, pp. 91–93.

[76] Grant Brimhall, interview with authors.

Part 7

Case Studies and Best Practices

Brief privatization examples help illustrate both the challenges and the potential benefits of privatization.

A. Indianapolis, Indiana—Managed Competition and Public-Private Cooperation

Indianapolis, under Mayor Stephen Goldsmith, spearheaded a unique enterprise-development group responsible for the evaluation of government services. The city initiated competition for numerous services through a bidding process in which both the public and private sectors compete. Every aspect of Indianapolis's MSW disposal plan is competitive.

Goldsmith and his team initiated a system of managed competition to handle their solid-waste management needs. The city limits the total number of contracts that firms and the public sector can be awarded in order to maintain competition. This process prevents vertical integration (in which one firm controls every aspect of a government's MSW flow) in a plan that includes waste reduction, recycling, landfills, and a waste-to-energy site.

The city's largest contract is with Odgen-Martin Systems of Indianapolis, which owns and operates the state's only waste-to-energy facility. Unlike some other governments, Indianapolis has had a positive experience with its resource-recovery facility. The city originally established the contract in 1985; service began in 1988 upon completion of the facility. The city contracts for disposal of the remaining waste with Randolph Farms, owner/operator of Southside Landfill, a landfill with a capacity exceeding 2,000 tons of MSW per day. These two facilities handle all of Indianapolis's disposal needs.

Kim Derchak, Director of Enterprise Development for the City of Indianapolis, states that construction of the resource-recovery facility (a public-private cooperative) has lowered costs to constituents. Tip fees are $25, versus $33.50 at Southside Landfill.[77] Furthermore, the sale of recovered steam and ferrous metals has generated a cumulative cash flow of over $20 million to city coffers. The city has conserved landfill space by reducing the volume of the city's waste delivered to the landfill by 90 percent.

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[77] City of Indianapolis, Department of Enterprise Development, "Initiative Management Review—Executive Summary," 1996.

Contract features include capacity guarantees, energy recovery, and environmental-regulation compliance guarantees. As for process, Derchak stresses the importance of education and inclusiveness. The city made sure that public employees, public-interest groups, potential bidders, and others were involved in the discussion about privatization and were fully informed throughout the competition process. This participation involves a lot of outreach and public-education efforts, including both public meetings and meetings arranged to address specific groups or issues.

B. Simi Valley, California—Asset Sale That Enhanced Control

Many opponents of privatization argue that privatization initiatives limit local government control over waste handling. The experience of Simi Valley suggests that privatization can be used to enhance control, limit liability, lower fees, guarantee capacity, and avoid being a home for hazardous-waste disposal.

Prior to the sale of the Simi Valley Landfill (SVL) to Waste Management (WMI), the landfill was regulated by Ventura County and operated by the Ventura Regional Sanitation District (VRSD) on property owned by Unocal. Simi Valley had little control over the facility that was located just outside its city limits; control was vested in a countywide special district in which Simi Valley had equal representation with other jurisdictions (the county and 10 other cities).

Simi Valley residents enjoy the lowest average trash fees in the county.

In 1980 and 1981, amid facility problems, emerging liability issues, and a continued public outcry that hazardous waste was permitted into the site, the city of Simi Valley asked for improvements in operations and an end to hazardous-waste disposal at the site. Privatization began to look like a way to meet these goals and to limit liability exposure.

Simi Valley prevailed, and in 1982, the SVL was sold to WMI. City officials are much happier with their relationship with the new landfill owner. The relationship gives them more control, and they are able to negotiate as a customer.[78] Since the sale to WMI, the operation of the SVL has significantly improved, and tipping fees have been reduced by an average of 9 percent. Through a separate agreement between the city and WMI, the city dedicates its solid-waste flow to the SVL and publicly supports it as a valued community asset. In return, WMI provides funds (averaging $33,281 per month) to compensate the city for street access and wear and tear caused by trash trucks from external jurisdictions.[79] Simi Valley's city manager, Mike Sedell, states that a close "working business relationship" exists between WMI and the city.[80]

In Simi Valley's case, privatization increased control of the landfill. County officials still maintain permit conditions and a separate operational agreement, which provides direct oversight and regulatory authority over the SVL. The VRSD's oversight of the SVL has been eliminated. Simi Valley has a contractual relationship with WMI to ensure landfill capacity, longevity, needed revenues, and reduced rates. Simi

[78] Mike Sedell, Simi Valley City Manager, interview with authors, March 1999.

[79] Joe Hreha, Deputy Director, Simi Valley Community Services Department, interview with authors, July 1999.

[80] Sedell, interview with authors.

Valley residents enjoy the lowest average trash fees in the county: $16.37 per month for residential trash service and $99.02 for commercial clients, compared to $22.15 and $109.98, respectively, in the rest of the county.[81]

C. San Diego, California—Asset Sale to Resolve Crisis

Like many other jurisdictions, San Diego County responded to concerns about landfill capacity by constructing a new recycling facility, the North County Resource Recovery Facility in San Marcos, completed in 1994. High construction costs and low scrap values combined to leave the facility over $100 million in debt. San Diego County was in trouble financially, and debt obligations began to affect other essential county services, as budget cuts dipped into already limited funding. The new chief administrative officer, Larry Prior, began to focus on running the county more efficiently. He explored alternatives for the future of the county's solid-waste system.

Larry Prior sent the board of supervisors four alternatives, much like the alternatives outlined in this study, accompanied by his recommendations. In late 1997, San Diego County completed a sale of all solid-waste assets to Allied Waste Industries (AWI). Before the divestiture, the county had contracted landfill operations to Norcal/San Diego Inc. (one of the initial eight bidders). The experience with Norcal proved positive enough for county supervisors to take full advantage of private-sector abilities; hence the sale.

Even though the county had sold all its assets, it would still control one of its core competencies by serving as the local enforcement agency.

The sale included four landfills, the recycling facility, and 10 rural bin stations. The divestiture is the largest of its kind. The county netted $184 million from the sale, after paying off $100 million in debt from the construction of the recycling facility. The county used these funds to create an environmental trust fund to finance the long-term maintenance of closed county-owned landfills, to fill up a number of county reserve funds, and to enhance other county services. Most important, the sale increased the county's bond rating (from Moody's Baa1 to A2 and from Fitch's A- to A+), further stabilizing the county's financial position. The higher bond rating enabled the county to refinance various projects at tremendous cost savings. Bill Kelly, the county's assistant auditor-controller, estimated that the county would save between $280,000 and $700,000 per year because of lower interest rates that accompany higher bond ratings.[82]

In addition to financial benefits, the divestiture transferred environmental liability from the county to AWI. Along with the facilities, AWI received all future liability, and all current liabilities were transferred through a contractual arrangement and figured into the price. County officials note that public health will continue to be protected, safety and environmental standards will be maintained, and regional trash disposal will be accomplished.

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[81] Ibid.

[82] Phillip J. LaVelle, "County's Bond Rating Gets Boost From Wall Street," *San Diego Union-Tribune,* March 27, 1998, p. A-1.

Dianne Jacob, a San Diego County supervisor, said of the sale: "Our responsibility was to find a long-term solution that would achieve all our objectives—and divestiture was the solution. The fact is that the [private] sector can function far more cost effectively in this industry—resulting in better services and lower trash-collection rates for consumers."[83] Jacob also pointed out that even though the county had sold all its assets, it would "still control one of its core competencies by serving as the local enforcement agency."[84] In this role, the county will continue to monitor AWI to enforce compliance with health, safety, and environmental regulations.

D. Fort Worth, Texas—Public-Private Cooperative for Expertise and Innovation

Waste Management (WMI) has operated the Southeast Landfill in Fort Worth under contract with the city since 1982.[85] Assistant City Manager Charles Boswell suggests that city officials are happy with the performance of WMI, noting that landfill operations have been "problem free" since WMI took over.[86] He also points out that WMI brought expertise that local employees did not have.

Fort Worth's experience with WMI does not stop at the Southeast Landfill. WMI handles 80 percent of the city's collection needs (the city handles the remaining 20 percent) and 100 percent of the recycling program. Boswell argues that it is more cost-effective to privatize, especially where ample competition exists in the market. Skeptics of privatization suggest that the Fort Worth system is a key example of vertical integration and that WMI is positioning itself to control all of Fort Worth's MSW needs. However, rather than holding the city "hostage" to its domination, WMI has worked extensively with Fort Worth in attempts to improve service delivery and approval.

For example, WMI and Fort Worth officials determined that something needed to be done to address future needs, because the Southeast Landfill had an estimated five years of remaining capacity. Through a public-private cooperative, WMI initiated four pilot programs at no additional cost to the city. To better manage the waste and preserve landfill space, WMI now offers:

- separate brush collection;
- separate bulky-waste collection;
- a composting program; and
- automated container collection that enables variable collection rates—customers who discard more waste pay more.

The brush and bulky-waste programs turned out to provide few benefits, but 84 percent of city residents (and the city council) are interested in expanding the variable-rate and composting programs.[87] Taxpayers receive

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[83] Dianne Jacob, "Cleaning Up the County Trash Mess," *San Diego Union-Tribune,* August 22, 1997, p. B-7.

[84] Ibid.

[85] The contract was recently rebid, and WMI successfully won the contract back for the third time.

[86] Charles Boswell, Assistant City Manager, City of Fort Worth, interview with authors, April 1999.

[87] Ibid.

enhanced service delivery at no extra cost and expect longer life for their landfill, saving them costs of expansion or construction of new facilities.

E. Chandler, Arizona—Competitive Contracting to Extend Landfill Life

The city of Chandler, located just outside of Phoenix, owns one landfill. City officials opted to contract operation of the landfill, hoping to extend its life expectancy. They anticipated that a private firm would have more expertise and greater access to innovative techniques than they had available in-house.

Chandler originally opted to enter into a contract with Laidlaw, which was purchased by Allied Waste Industries (AWI) in 1996 and has continued to win rebids on the contract. The landfill's life expectancy has been extended by 40 percent, affirming the value to the city of the partnership with AWI.

AWI extended the life of the landfill by initiating a sophisticated compaction system, since greater compaction permits the intake of more waste, extending life expectancy. Chandler's landfill has a compaction rate of 2,000 pounds per cubic yard, versus the waste disposal average of 1,200 to 1,400 pounds per cubic yard.[88] The city helped achieve this compaction rate by introducing an incentive structure for landfill operations (see Table 5). AWI's bonus or penalty depends on the compaction rate as measured by the city. The city's superintendent of solid waste and recycling, Gerry Backhaus, suggests that incentives typically do not exist for public agencies to achieve results similar to AWI's.[89]

Table 5: Chandler, Arizona: Compaction Rate* Bonus and Penalty Structure

1200–1299 = $2.00 per ton penalty	1700–1799 = $0.50 per ton bonus
1300–1399 = $1.50 per ton penalty	1800–1899 = $1.00 per ton bonus
1400–1499 = $1.00 per ton penalty	1900–1999 = $1.50 per ton bonus
1500–1599 = $0.50 per ton penalty	2000–2099 = $2.00 per ton bonus
1600–1699 = no penalty, no bonus	

Source: City of Chandler, Arizona, "Special Terms and Conditions: Municipal Solid Waste Landfill Operations," Bid No. SW6-0495-1236, April 1996, p. GS-11.
*pounds of refuse per cubic yard

The compaction rate has led to cost savings for citizens in two ways: first, citizens avoid landfill expansion costs; second, tip fees have fallen, in part because more waste "fits" in a smaller area. Backhaus praised AWI: "They work with me, not against me; it's like a mutual marriage."[90] Beyond landfill operations, Chandler contracts for other MSW disposal services. Waste Management handles all collection. These firms (among others) frequently compete for these contracts, resulting in efficient service for the citizens of Chandler.

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88 Gerry Backhaus, superintendent of solid waste and recycling, city of Chandler, Arizona, interview with authors, April 1999.

89 Of course, there are exceptions. The Delaware Solid Waste Authority, a public agency, has similar compaction rates.

90 Backhaus, interview with authors.

Part 8

Conclusion

Landfill markets are shifting toward megafills designed to handle waste from regional areas. It is sometimes difficult for local governments to expend the necessary political capital, to raise the necessary financial capital, or to form a regional political coalition for siting or constructing a megafill. Privatization offers an alternative.

Private firms often have a comparative advantage over public agencies in the ownership and operation of landfills. They have access to capital, they are not subject to public-sector procurement constraints, and they can be held immediately accountable for inadequate performance. These factors allow firms to be innovative, driving them to find the least-costly and most-efficient operational techniques.

With privatization, public officials become consumer advocates, not operations managers. As consumer advocates, they negotiate, or shop, in the market for the best deal for their constituents. The contract establishes standards of accountability. Expectations of penalties or termination for nonperformance or noncompliance help assure high-quality service. And expectations of bonuses or higher profits bring increased productivity and lower costs.

A competitive market to provide MSW disposal makes asset sales and leases attractive. For some governments, getting out of the landfill business and becoming a customer allows the city to shop for the best value and relieves officials of the day-to-day headaches of running a complex operation.

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Appendix

Sample Landfill-Cost Worksheet

The "Typical Costs" shown are based on the following assumptions:

- Population Served - 200,000
- Waste Stream - 550 tons per day
- Land Area - 150 acres
- Landfill - 100 acres
- Landfill capacity - 6.45 million cubic yards
- Landfill life span - 20 years
- Post-closure period - 30 years
- Liner - Composite, consisting of 60-mil synthetic, plus three feet of compacted clay

NOTE: All costs in 1992 dollars.

Landfill Development Costs

Pre-Development Costs	
Land Options	$ 20,000
Surveying, Geotechnical	$ 30,000
Legal	$ 5,000
Real Estate Fees	$ 5,000
A. *Total Pre-Devel. Cost*	$ 60,000
Permitting Costs	
Geotechnical Investigations	$ 300,000
Engineering & Design	$ 400,000
Legal Fees	$ 300,000
Public Hearing Fees	$ 150,000
Environmental Impact Study	$ 300,000
Contingency (15%)	$ 215,000
Land (150 acres @ 3000/acre)	$ 450,000
B. *Total Permitting Cost*	$ 2,115,000
Construction Cost	
Access Roads	$ 200,000
Land Clearing	$ 50,000
Excavation-Initial Cells	$ 500,000
Fencing	$ 100,000
Landscaping	$ 50,000
Scalehouse	$ 30,000
Scales	$ 80,000
Office Building	$ 150,000

Annual Operating Costs

Equipment Fuel, Maintenance	$ 250,000
Labor	$ 400,000
Engineering	$ 40,000
Surveying	$ 10,000
Utilities	$ 15,000
Road Maintenance	$ 30,000
Seeding	$ 15,000
Operating Supplies	$ 10,000
Water Monitoring	$ 60,000
Gas Well Installation	$ 60,000
Methane Flare, Blower Operation	$ 150,000
Final Cover (Annual Closure Activity)	$ 300,000
Leachate Treatment	$ 60,000
Leachate Transportation	$ 80,000
Post-Closure Bond	$ 56,000
Insurance	$ 150,000
G&A	$ 50,000
Post-Closure Accrual	$ 562,000
Total Annual Operating Costs	$ 2,298,000

Construction Cost (con't)	
Drainage	$ 40,000
Sedimentation Ponds	$ 30,000
Utilities	$ 40,000
Monitoring Wells	$ 80,000
Methane Flare, Blowers	$ 500,000
C. *Total Construction*	$ 1,850,000
Liner Cost (100 Acres)	
Excavation	$ 2,726,000
Leachate Collection Gravel	$ 2,000,000
Leachate Collection Pipes	$ 800,000
Synthetic Liner	$ 2,500,000
Clay Liner	$ 3,900,000
Filter Fabric	$ 796,000
QA/QC	$ 1,000,000
D. *Total Liner Cost*	$ 13,722,000
Capital Cost	
A. Pre-Development	$ 60,000
B. Permitting	$ 2,115,000
C. Construction	$ 1,850,000
D. Liner	$ 13,722,000
Sub Total	$ 17,747,000
E. Equipment	$ 6,500,000
Total	$ 24,397,000

Source: Calculating Landfill Costs: Background and Worksheet," Browning-Ferris Industries, Houston, Texas, 1992.

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