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*Government's Hand in the  
Recycling Market:  
A New Decade*

by Christopher Douglass

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by Christopher Douglass

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## Introduction

As recycling in America enters its second decade of expansion, the landscape is dramatically different from recycling's early years. A national infrastructure for collecting, transporting, and sorting recyclables has matured, and recycling enjoys widespread popular support. Today, America is recycling its waste at unprecedented levels.

But pushing recycling rates higher is becoming increasingly difficult. The Environmental Protection Agency (EPA) reports that recycling and composting recovered 4 percent more waste in 1996 than it did in 1995, much less than the 10.8 percent average annual growth over the previous five years.<sup>1</sup> With researchers projecting slowing growth in recycling rates, states and cities face diminishing returns from continued support of recycling programs. Should America continue to finance recycling expansion, consider the battle won and maintain current rates, or perhaps cut back subsidies and mandated recycling programs?

This report examines recent government action on municipal solid waste recycling, including legislative initiatives to increase both collection of recyclables and market demand for recyclables.<sup>2</sup> It catalogues the methods and surveys the results of federal, state, and local efforts to make recycling viable. Finally, it discusses some of the lessons America can learn from its decade of experience with recycling.

## The Growth of Recycling in America

Recycling has become a major social institution in America. Its symbol—three chasing arrows—is ubiquitous, seemingly adorning every consumer product. Drop-off areas and recycling bins dot the suburban landscape. Elementary school students learn a new “Three R’s”—Reduce, Reuse, Recycle.

Almost 200 million Americans have access to community-run recycling programs, according to a survey by the American Forest and Paper Association.<sup>3</sup> There are nearly 9,000 curbside recycling programs serving 52 percent of the American people. According to

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one survey, the recycling rate for the nation's municipal solid waste grew from 10 percent in 1985 to 30 percent in 1998.<sup>4</sup>

Popular among consumers and environmental groups alike, recycling has become America's environmental good deed for the day. Allen Hershkowitz of the Natural Resources Defense Council says, "Recycling is probably the single most successful environmental policy out there. Most people in the world today know about reduce, reuse, recycle. It is very widely practiced. More people participate voluntarily in recycling than voted in the last four presidential elections."<sup>5</sup>

Though it has recently escalated in popularity, recycling, as a practice, is not new. Merchants have collected cardboard boxes, baled, and then recycled them for decades. An industry for salvaging and reprocessing automobiles and large appliances has operated for half a century. It was not until recently, however, that government at all levels elevated recycling to a national priority.<sup>6</sup>

## The Landfill "Crisis"

In the late 1980s, dramatic predictions of landfill closings and a vagabond trash barge loaded with New York City trash created a crisis mentality in America. A 1988 EPA report to Congress projected that one-third of all landfills in the United States would close by 1994 and that by 2008 nearly 80 percent of landfills would be shut down.<sup>7</sup> EPA Assistant Administrator J. Winston Porter claimed at the time, "We have a real [landfill] capacity crunch coming up."<sup>8</sup> Senator Max Baucus (D-Montana), then chairman of the Senate Subcommittee on Environmental Protection, said, "We are overwhelming ourselves with garbage, and we are running out of safe and secure places in which to place it."<sup>9</sup>

State and local governments responded to the resulting public concern by turning to recycling. States established recycling goals and requirements, grants for recycling programs, and mandates for recycled products in government purchases. Forty-four states established recycling goals in the late 1980s. Illinois, for instance, passed a law mandating county recycling plans and specifically cited dwindling landfill space as its justification.<sup>10</sup> Local communities expanded their trash collection services to include curbside recycling programs and recycling drop-off sites.

Beyond solving a crisis, further justifications for these efforts included the preservation of resources and, in the end, creation of a garbage disposal method that would avoid the pollution of landfilling or incineration. Plus, cities were told that after markets for

recyclables matured, local governments would make money by selling recovered household waste. Recycling promised to be an economical and environmentally beneficial answer to the nation's garbage woes. The timing was propitious for new infrastructure investment, as 1989 saw most Americans choose the environment as their top priority for more government spending, ahead of even crime and health care, according to a National Opinion Research Center poll.<sup>11</sup>

Although the recycling movement was spectacularly successful at motivating action, its foundational notions were, in large part, misconceptions. There was, in fact, no landfill crisis in the late 1980s, and recycling is not always the most environmentally responsible way to manage household waste.

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The trash barge's well-publicized failure to find harbor was not the result of a lack of landfill space. An entrepreneur had filled the Mobro 4000 with New York City trash and planned to dump it in the South, where landfill fees were lower due to the abundance of landfill space. Because he had not found a dumpsite before setting sail, a landfill in North Carolina suspected toxic waste might be mixed in with the garbage and rejected the Mobro's load. After heavy media coverage of this refusal, no other community would accept the trash. Following two months of sailing, the Mobro 4000 returned to New York, where its load was incinerated.<sup>12</sup>

The nation had lost landfills, but it had lost little landfill space. New federal regulations to limit water pollution and gas emissions raised the average cost per metric ton of operating landfills from \$9 to \$20.<sup>13</sup> Small, mainly publicly-owned landfills opted to close rather than incur the high cost of meeting the new standards. Although high numbers of landfills closed, the new landfills opening in the 1990s were much larger in order to offset the high fixed costs of the new rules.

During the supposed crisis, sites were abundant for new landfills, even in the densely populated Northeast. A 1989 survey of the

eastern half of the state of New York performed by the state government found more than 200 square miles of geologically safe land.<sup>14</sup> This amount represents less than 0.4 percent of the state's area, yet it could hold all of New York's trash for the next two centuries.<sup>15</sup>

Today, landfill capacity is more than adequate. When asked in a 1997 survey whether there was a disposal capacity problem in their state, 45 out of 46 states responded that there was no capacity problem, with only Hawaii reporting inadequate landfill space.<sup>16</sup> Twenty-nine of 37 states responding to a 1998 survey said they have more than ten years of capacity available, with the state of Wyoming claiming 100-plus years of capacity.<sup>17</sup>

## Environmental Benefits Questioned

In addition, some recent studies dispute that recycling is always environmentally beneficial. Matthew Leach, Ausilio Bauen, and Nigel J.D. Lucas point out in the *Journal of Environmental Planning and Management* that the more one values clean air, the more recycling should rankle, due to the long distances recyclables must usually be transported by pollution-spewing, energy-consuming vehicles. Additionally, Leach, et al., find that every ton of paper incinerated rather than recycled in Great Britain prevents 300 kilograms of carbon dioxide emissions.<sup>18</sup>

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Others have pointed out that de-inking newsprint or office paper can create hazardous sludge. Ghislain Bolduc, manager of a paper recycling plant, told *Chemical Marketing Reporter* in 1994, "Newspaper consists of about 2 percent ink, but the concentrate of sludge we acquire is toxic and it has to be dealt with. For every ton of mixed office waste paper that we de-ink, we create roughly one ton of sludge."<sup>19</sup>

Recycling technologies such as de-inking are becoming progressively cleaner, but transporting, sorting, and processing recyclables cannot be assumed to have zero environmental costs.

Growing public recognition of these fundamental misconcep-

tions has borne little effect on government action in recent years. Government at all levels continues to sponsor and support recycling through a myriad of pick-up programs, educational initiatives, business subsidies, content mandates, and purchasing preferences.

## Recent Government Action

### Federal Initiatives

After a flurry of congressional activity in the late 1980s and early 1990s that failed to produce any major laws, federal policymakers have been operating on the fringes of solid waste management.

The Environmental Protection Agency's Office of Solid Waste and Emergency Response coordinates recycling efforts for the executive branch. Its annual *Characterization of Municipal Solid Waste in the United States* catalogues each year's progress in recycling rates for individual commodities and areas of the country.

EPA has set "recycling goals," such as a 35 percent recycling rate by 2005, but has no authority to enforce its targets. To help states and localities reach these goals, EPA's grant program funds projects ranging from recycling education to investment in recycling jobs.<sup>20</sup> EPA also develops technical guides to help states and local governments with their recycling programs. One recent initiative has been to standardize data collection and reporting techniques among the states. In September 1997, EPA published *Measuring Recycling: A Guide for State and Local Governments*, which details a voluntary methodology for calibrating recycling rates.

The Clinton administration convened a recycling conference in May 1998 to discuss federal recycling efforts, focusing particularly on increasing federal purchasing of recycled products. Federal Environmental Executive Fran McPoland said at the meeting, "The president doesn't think this [current government purchases of recycled products] is sufficient. The president is now ready to take the next step."<sup>21</sup> Administration officials are planning a public conference in the autumn of 1998 to bring further attention to the issue.

Congress has given its attention in recent years to ancillary issues, such as interstate transportation of waste. It has largely ignored waste reduction initiatives, although a national "bottle bill" has traditionally been proposed every year since 1970; the most recent was introduced in December 1997 by Rep. Thomas Allen (R-Maine). Congressional priorities in the waste-management arena have instead been to debate such issues as interstate waste transfers and flow control (determining where locally generated waste

Table 1  
**Current State Recycling Goals and Rates**

<b>State</b>	<b>Goal</b>	<b>1997 Rates</b>	<b>Deadline</b>
Alabama	25 %	23 %	None
Arkansas	40	36	2000
California	50	30	2000
Colorado	50 <sup>1</sup>	18	2000
Connecticut	40	23	2000
Delaware	25	31	2000
District of Columbia	45	8	1994
Florida	30	40	1995
Georgia	25	33	1996
Hawaii	50	25	2000
Idaho	25	n/a	1995
Illinois	25	28	2001
Indiana	50	23	2000
Iowa	50	32	2000
Kentucky	25	28	1997
Louisiana	25	14	1992
Maine	50	41	1998
Maryland	20	29	1994
Massachusetts	46	33	2000
Michigan	50 <sup>2</sup>	25	2005
Minnesota	50 <sup>3</sup>	42	1996
Mississippi	25	13	1996
Missouri	40	33	1998
Montana	25	5	1996
Nebraska	50	27	2002
Nevada	25	15	1995
New Hampshire	40	25	2000
New Jersey	65	45	2000
New Mexico	50	12	2000
New York	50	39	2000
North Carolina	40	26	2001
North Dakota	40	21	2000
Ohio	25/50 <sup>4</sup>	19	2000
Oregon	50	28	2000
Pennsylvania	35	26	2001
Rhode Island	70 <sup>5</sup>	23	—
South Carolina	30	34	1997
South Dakota	50	42	2001
Tennessee	25	40	1995
Texas	40	—	1994
Vermont	40	30	2000
Virginia	25	32	1995
Washington	50 <sup>6</sup>	48	1995
West Virginia	30/50 <sup>7</sup>	20	2000/2010
Wyoming	25/35 <sup>8</sup>	5	2005

*Source:* Jim Glenn, "The State of Garbage in America." *Bicycle*, May 1998, p. 48.

*Notes:* **1.** Goal announced by governor, not legislated; **2.** 25% recycling, 10% composting, 10% source reduction, 5% reuse; **3.** 50% goal in 7 county Twin Cities area, 35% in greater Minnesota; **4.** 25% for residential/commercial, 50% for industrial; **5.** Processing for recycling; **6.** Legislation sunset in 1995; **7.** 30% by 2000, 50% by 2010; **8.** 25% without composting, 35% with composting.

must be disposed) and to set minimum standards for landfills and incinerators.

Interest in fashioning national recycling legislation seems to have peaked in the early 1990s, but action at the state level has been steady as states strive to meet their self-imposed deadlines for waste diversion and recycling.

## State-level Activities

Since recycling became a significant policy issue in the late-1980s, state governments have provided strong oversight by creating recycling goals and funding local waste-management projects. As shown in Table 1, 44 states and the District of Columbia currently have recycling targets in place.

The majority of states' self-imposed targets will not come due for several years, although nine states have already exceeded their goals. Targets range from 20 percent in Maryland to 70 percent in Rhode Island. Across the country, the average state goal is near 40 percent.

States report a wide range of current recycling rates, from 5 percent in Montana to 48 percent in Washington, with the national average at 27 percent.

Although there are multiple substantive factors creating disparities between states, one of the major reasons for the difference is technical: states compile their rates differently. For some, recycling is synonymous with diverting waste from landfills and incinerators. Counting composted yard waste as recycling, for instance, can boost a state's rate 10 to 15 percent. Some states, such as New Jersey, also include scrap metal salvaging and reclaimed construction and demolition debris in their recycling calculation, materials most states do not factor into their rates.

As a whole, states are recycling at levels far above any previous time in history. Yet it has been costly, with states spending an annual total of \$322 million to support recycling programs. California spends the most on recycling, \$70 million a year (see Table 2).

Recycling budgets come from a variety of sources, including general appropriations, bond issues, product taxes, and disposal surcharges. The most significant of these has been disposal surcharges, with most of the 19 states with such fees charging between \$0.25 and \$4.25 per ton for disposal in their state.<sup>22</sup> Connecticut and New Jersey's disposal surcharges have recently expired without being reauthorized, whereas Pennsylvania recently extended its disposal fee until 2003.

Table 2

### State Recycling Budgets

State	1997 Budget	State	1997 Budget
Alaska	n/a	Montana	\$50,000
Alabama	\$275,000	Nebraska	1,250,000
Arizona	1,500,000	Nevada	1,100,000
Arkansas	2,650,000	New Hampshire	n/a
California	70,000,000	New Jersey	n/a
Colorado	500,000	New Mexico	n/a
Connecticut	911,000	New York	5,900,000
Delaware	2,000,000	North Carolina	1,200,000
Florida	12,000,000	North Dakota	45,000
Georgia	6,000,000	Ohio	10,000,000
Hawaii	3,100,000	Oklahoma	4,000,000
Idaho	n/a	Oregon	2,500,000
Illinois	7,300,000	Pennsylvania	39,000,000
Indiana	4,450,000	Rhode Island	n/a
Iowa	8,100,000	South Carolina	6,000,000
Kansas	n/a	South Dakota	1,300,000
Kentucky	n/a	Tennessee	8,900,000
Louisiana	6,700,000	Texas	27,000,000
Maine	n/a	Utah	1,600,000
Maryland	250,000	Vermont	360,000
Massachusetts	7,000,000*	Virginia	3,000,000
Michigan	625,000	Washington	n/a
Minnesota	23,400,000	West Virginia	n/a
Mississippi	n/a	Wisconsin	51,500,000
Missouri	7,200,000	Wyoming	48,000

*Sources:* Jim Glenn, "The State of Garbage In America, Part II," *Biocycle*, May 1998, p. 52; Katherine Egan, "Many States Plan to Increase Funding for Recycling," *Recycling Times*, July 1, 1998; "State Legislative Roundup," *Waste News*, July 20, 1998.

*Notes:* \* = Fiscal Year 1999; n/a = not available.

Some states have tried to limit appropriations for recycling in recent years. In Florida, state legislators cut the recycling budget in half for 1998, from \$23 million to \$11 million, because they said they had reached their recycling goal and wanted to use excess funds for more pressing environmental concerns. Funds were later reinstated at the recommendation of a state task force.<sup>23</sup> State-funded recycling programs in Minnesota, Pennsylvania, and Wisconsin will require reauthorization in the coming year if they are to continue.

Although there has been very little broad-brush legislation at the state level since the early 1990s, governors continue to raise

recycling goals. In Pennsylvania, Governor Tom Ridge announced in 1997 that he was raising the recycling goal, without a legislative mandate, to 35 percent by 2001. Colorado Governor Roy Romer created a recycling goal of 50 percent by 2000, also without legislation.

States such as Texas, Colorado, and California have emphasized waste reduction rather than focusing exclusively on recycling. Alan Watts, recycling manager for the Texas Natural Resources Conservation Commission, said, "To realize the full benefits of recycling, you have to look at recycling as a means to an end, and the end is waste reduction."<sup>24</sup> In 1989, Iowa passed one of the first laws to mandate reducing the amount of waste entering its landfills, requiring a 50 percent diversion rate by 2000. California also instituted a landfill diversion mandate in 1989, requiring 25 percent reduction by 1995 and a 50 percent reduction by 2000. Several California cities failed to make the 1995 target, but were not fined due to their "good faith" efforts toward recycling. Only Santa Fe Springs, California, was assessed a fine—\$43,000.<sup>25</sup>

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The methods used by state governments to foster recycling and waste reduction vary from state to state. Some tie grant money to municipal or county recycling rates, while some, such as California, have fined those cities which fail to reach specific levels. Others provide technical assistance and low-interest loans to recycling businesses.<sup>26</sup> Nine states have simply mandated that local communities of a certain size operate curbside recycling programs.

In North Carolina, municipalities failing to reach goals face "no formal consequences," according to officials.<sup>27</sup> In Massachusetts, the state government publishes a recycling "report card" that grades municipalities on their recycling and waste-reduction activities.

One widely used method to encourage recycling is to subsidize city and private recycling programs. In 1997, 33 states provided grants to local governments and private companies for recycling projects; the grants totaled \$183 million, down slightly from 1996's \$190 million. In South Carolina, counties meeting both a recy-

cling goal and a waste reduction goal by May 1997 were eligible to receive bonus grants.

Other measures to encourage recycling and waste reduction directly affect the private sector. Some states have employed complex legislation such as bottle bills, which provide redemption values for beverage containers, and “advance disposal fees” (ADF), which attach disposal costs to each product that the consumer purchases through an up-front fee.

Between 1972 and 1986, 10 states passed bottle laws, but no new laws have come into being since then. The original rationale was to limit litter of the 480 beer and soda containers bought by the average American each year.<sup>28</sup> By requiring bottlers to collect deposits when cans are sold and then refunding those deposits when the containers are returned, policymakers hoped that an economic incentive would encourage consumers to keep containers off the roadsides and other public areas. In recent years, the justification for keeping bottle bills on the books has shifted toward waste reduction.

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Some environmentalists have called bottle bills damaging to recycling programs. They say these laws take revenue away from curbside recycling programs and diminish participation in those programs. One serious administrative problem with current bottle bills arises when consumers purchase containers in a state with no deposit and return them in a state offering a refund. Massachusetts estimates that it loses \$3.5 million in revenue and spends an extra \$1.6 million in handling costs each year on out of state beverage containers.<sup>29</sup>

According to bottle-bill advocates, these laws produce a high recovery rate—nearly 80 percent in the 10 states with deposit systems. In addition, extra revenue from unredeemed bottles accrues to state governments that do not allow distributors to keep those funds.<sup>30</sup> Massachusetts more than covered its losses from out of

state redemptions by gaining \$100 million in unclaimed deposits on its 5 cents per container program for the 1990 to 1996 period.

Soft drink distributors and retail stores are forced to bear much of the cost burden for these programs. In New York, trade associations say that handling each container costs about 3.7 cents, while state reimbursement is 1.5 cents per container. This difference totals about \$99 million each year.<sup>31</sup> Distributors in New York recoup much of this loss by keeping deposits unrecovered by consumers—roughly \$75 million each year. The \$24 million annual shortfall has caused distributors such as Mark Crisafulli of John J. Oliver Distributors in New York to say, “For us, it’s an enormous amount of effort for no money . . . It’s basically community service.”<sup>32</sup> For the state of New York, the average cost per person of a bottle bill is \$17.50 per year, according to studies by the Tellus Institute.<sup>33</sup>

California currently has container deposit laws slightly more complex than most states, as it uses a state agency to transfer funds between bottlers and consumers. California’s system requires beverage distributors to deposit into a fund an amount for each container sold in the state, adjustable over time. The state government then refunds money to consumers when they redeem their containers. Additionally beverage-makers must pay 75 percent of the difference between the market price for used containers and their processing costs. California’s bottle bill provisions will expire on January 1, 1999, setting the stage for a battle over continuing its plan.

A bill in Oregon to expand the types of containers subject to its deposit law was voted down in a referendum in late 1996. New York’s bottle bill has come under fire recently for its high costs and competing with curbside programs.<sup>34</sup> Legislatures in states such as Georgia, Kentucky, Iowa, and North Carolina have entertained bottle bills, but no states have implemented new laws since the late 1980s.

Advance disposal fees were another innovation in solid waste legislation brought to bear in the 1980s. Desiring to incorporate the cost of disposal into the purchase price of goods, the Environmental Protection Agency initiated a study of the idea’s feasibility in the early 1970s. When the supposed landfill crisis hit America in the late 1980s, the idea resurfaced. A 1992 study by Arthur D. Little, Inc., found 28 ADF bills proposed in 17 states, 60 percent of which addressed packaging and 40 percent of which focused on non-durables such as tires and batteries.<sup>35</sup>

Florida became the first state to pass ADF legislation, when, in 1988, it placed a one-cent fee on all container types that had

recycling rates of less than 50 percent. In its first year of implementation (October 1993 to September 1994), the ADF generated nearly \$45 million for the state.<sup>36</sup> In the following year, however, the number of products exempted from the fee rose from 2 percent to nearly 70 percent of all containers eligible, and revenues subsequently fell to \$20 million.

Industry organizations, such as the Grocery Manufacturers of America, claimed the ADF had not met its promises. A spokesman said, "The significant flaws of this regressive and deceptive tax include: only 12 percent of the tax is spent on recycling, contrary to original intent; and the state hired nearly 100 full-time bureaucrats to administer the tax, at a cost of \$5 million annually."<sup>38</sup> Florida lawmakers allowed the program to sunset without renewal in 1995. Hawaii and the Virgin Islands have tried similar programs, but on a much smaller scale.

In 1995, state recycling programs suffered considerable cutbacks as part of general budget-cutting. Maine eliminated its Waste Management Agency and its 13 positions. John Miller, spokesman for Governor Angus King, said, "We're not abandoning our waste management goals. It's part of government downsizing. We'll see a net savings of \$4.2 million."<sup>39</sup>

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*In 1995, state recycling programs suffered considerable cutbacks as part of general budget-cutting.*

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The Virginia Assembly killed the Commonwealth's Office of Litter Prevention and Recycling by rerouting more of its litter tax proceeds toward local governments. North Dakota eliminated its mandatory solid waste management fee, which had raised \$1.3 million every two years, although many cities were expected to retain these fees.

In the state of Washington, a solid waste surcharge that generated \$5 million annually was allowed to expire, removing funding for 34 positions in the Department of Ecology. State funding for the Clean Washington Center, an organization in the state that had helped small companies develop recycling technologies and find markets for their products, was also canceled in 1995. Washington state's Department of Ecology spokesman said after his state's budget cuts, "It basically leaves it to local government to deal with recycling."<sup>40</sup>

Table 3

**Market Prices of Recyclables, May 1998 and May 1997**

Post-Consumer Recyclable Material	Price—May 18, 1998 \$/ton	Price—May 5, 1997 \$/ton
Aluminum Beverage Cans	\$1060	\$1160
Baled Natural Plastic (HDPE)	300	400
Baled Clear Plastic (PET)	220	120
<b>Average Cost of Recycling Programs—1996<sup>37</sup></b>	<b>198</b>	<b>198</b>
Computer Laser-Free Paper	184	172
Baled Green Plastic (PET)	180	100
Computer Laser Paper	161	152
Auto batteries	140	120
White Ledger Paper	135	139
Used steel cans	99	91
High-grade Office Paper	81	76
Corrugated Paper	58	60
Clear Glass	40	42
Newspaper #8	35	24
Brown Glass	22	23
Green Glass	13	13

Source: "U.S. Composite Prices," *Recycling Manager*, May 18, 1998.

State governments have been active in solid waste management during recycling's decade of growth, using many different means to boost collection of recyclables. State recycling rates, however, have been largely contingent on localities' willingness to provide these services.

### Cities and Counties

Municipally-run curbside recycling programs ballooned from just over 1,000 in 1989 to 9,000 in 1998.<sup>41</sup> For nearly all local governments, extending this service to constituents has been expensive. The cost of collecting and sorting recyclables has exceeded their market prices in most parts of America, forcing most recycling programs to operate at a deficit.

Franklin Associates, the consulting firm which compiles EPA's annual solid waste report, estimates that the cost of collecting recyclables is about \$139 per ton for programs that recycle old newsprint and magazines, steel and aluminum cans, plastic packaging,

and glass containers. The cost of sorting these recyclables averages \$86 per ton, and the benefits from avoiding landfilling fees is typically \$27 per ton, for a net cost of \$198 per ton.<sup>42</sup> As shown in Table 3, the majority of recyclables collected yield less than \$198 per ton at 1998 prices. Aluminum cans have been profitable for some time and HDPE and PET, the two most common plastics for soda, milk, and water containers, now cover their costs, PET only recently. Although these prices and costs vary across the country, this table provides a rough idea of the disparity between most recycled material prices and the costs of municipal curbside recycling.

The bottom line for many municipal recycling programs shows a net loss. The costs incurred by collecting recyclables from the curb, transporting them to a materials recovery facility, and sorting them there cannot be recovered in the current recyclables market. Calculations by Franklin Associates in 1997 put the average costs for municipal waste programs with curbside recycling at \$144 per household compared to costs of \$119 per household for cities without recycling programs.<sup>43</sup> Table 4 shows the per household cost of recycling programs in eight localities of varying size around the nation, ranging from an estimated \$13 per household in Aurora, Illinois to \$36 per household in Portland, Oregon.

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In the Baltimore metropolitan area, the city and its six surrounding counties have recycled a total of 2.5 million tons since 1991 through curbside recycling programs and other residential programs, at a total cost of \$250 million. All of those recyclables collected could have been buried in 27 acres in the nearby King George County Landfill at a total cost of \$83 million, according to *The Baltimore Sun*, 33 percent of the cost of recycling.<sup>44</sup> Similarly, in 1997, the small town of Sanford, Maine, paid a company \$90,990 to collect recyclables that could have been landfilled for \$13,365.<sup>45</sup>

Although state governments have alleviated some of this cost

Table 4

### Costs of Selected Municipal Recycling Programs

Locality	Annual Program Cost	Number of Households Served	Annual Cost Per Household
Portland, OR <sup>46</sup>	\$4,680,000	130,000	\$36.00
Santa Fe, NM <sup>47</sup>	637,000	22,000	29.00
Chillicothe, OH <sup>48</sup>	220,000	8,000	28.00
Malibu, CA <sup>49</sup>	96,000*	4,000	24.00
Prince George's County, MD <sup>50</sup>	2,900,000	150,000	19.00
Nashville, TN <sup>51</sup>	1,200,000	70,000	17.00
Cambridge, MA <sup>52</sup>	657,000	41,000	16.00
Aurora, IL <sup>53</sup>	428,000**	33,000	13.00

*Sources:* As footnoted

*Notes:* \* Haulers charge \$2.00 per month per household for recycling services.

\*\* Estimate calculated from bid price of \$0.19 per bag, 2.25 million bags.

burden through grants, many localities have been forced to cut back their recycling programs or discontinue them altogether. The county waste agency for Des Moines, Iowa, is looking for ways to continue its recycling program despite incurring losses between \$500,000 and \$1 million in 1997. Dumping fees at the county landfill had paid for the program until haulers began going to less expensive sites. To avoid these losses to the county landfill, the waste agency cut the fees and asked cities in the spring of 1998 to begin paying the \$25.20 annual cost per household for recycling services.<sup>54</sup>

The city council of 24,000-resident Chillicothe, Ohio, dropped its \$220,000 recycling program in January 1998, citing fewer state and federal grants, low recyclables prices, and more important city needs, such as a new aerial ladder truck for their fire department. Chillicothe councilman Paul Thurman said, "To me, it's [the recycling program] just a waste of tax money."<sup>55</sup>

In the nine states where curbside recycling programs are mandated, localities have felt the pressure to meet state-imposed goals. Officials in Prince George's County in Maryland, for instance, say that it has been state pressure more than constituent desire that has driven its program to continue operating. Chelo Cole, head of the county waste reduction program, says, "We have to an-

swer to the state. Right now the pressure from the state is to achieve a 20 percent waste reduction.”<sup>56</sup> In Florida the law allows the state government to withhold permits and deny grants when counties fail to meet their goals, although such sanctions have not yet been applied.

Some localities have responded by monitoring and policing their residents to ensure individuals contribute to their area’s recycling rate. Mary Andrews, recycling coordinator for the town of York, Maine, says, “We feel like some residential people are not recycling like they should, so we’re toying with the idea of using clear bags for trash, so if the hauler sees milk cartons and other recyclable things in there, he wouldn’t pick up their trash.”<sup>57</sup>

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Officials in Hampton, Virginia, are using a radiomagnetic scanner system to keep track of which homes are putting out their recycling bins. An antenna mounted on recycling trucks uses radio waves to register small button-like tags on the recycling bins that it passes by. If a household’s recycling bin is placed on the curb at least four times during an eight or nine week period, it is charged three dollars less than households that have not put out their bins. City officials claim that recycling participation has jumped to 70 percent since the scanner system was implemented.<sup>58</sup>

More common than these methods are education and publicity. An article written for cities trying to begin recycling programs notes, “Public support is imperative before program implementation. Many communities have found it pays to hold public meetings, mail informational pamphlets, use volunteers to distribute literature and answer residents’ questions, erect banners and signs promoting the program, and work with the media in getting the word out. Without a good awareness campaign, your program may have difficulty achieving a high participation rate.”<sup>59</sup> Maine’s state recycling manager says, “It’s got to be made part of the culture of the community.”<sup>60</sup>

Such social-awareness initiatives have been instrumental in increasing recycling collection rates. These programs have remained unprofitable, however, because there is little demand for recyclable materials at prices that would cover collection and processing costs. Governmental activity to increase demand for these materials has been steady since the 1980s and has risen slightly in recent years.

## Government's Influence on the Market for Recyclables

The market for post-consumer recyclables, like any market, has two sides: the generation, or supply, side and the demand side. Curbside recycling programs and drop-off centers generate a supply of recovered materials, but the prices they garner also depend on the market's demand for recyclables. Recognizing that collected recyclables will sit in warehouses unless prices are right, federal and state governments have given considerable attention to increasing demand for recycled products.

The first annual "America Recycles Day" took place in November 1997 and emphasized the demand side with the theme, "Keep Recycling Working: Buy Recycled." Honorary Chairman Vice President Al Gore said, "We must buy recycled at home; request recycled from the companies with which we work; and demand recycled from our local, state, and federal governments."<sup>61</sup>

Government has been active on this front for many years. By 1993, all fifty state governments and many major cities had either mandated that their agencies and departments purchase recycled products or that they set up purchasing preferences for recycled goods. Purchasing preferences allow agencies to spend a certain percentage above market price on a product if it contains recycled material (see Table 5).<sup>62</sup>

A 1997 survey by *State Recycling Laws Update* found that 27 of the 36 states responding were enforcing purchasing-preference requirements for their agencies. Pennsylvania claims to have spent \$84 million on recycled products in 1995.<sup>63</sup> A survey by the Government Purchasing Project in October 1996 found that, of 30 states surveyed, 21 reported individually spending more on recycled copier paper than did the federal government.<sup>64</sup>

In specific instances, states have gone beyond the public sector and have mandated that private companies operating within their bounds use a certain percentage of recovered materials in their products. Newspaper publishers, for example, face recycled content mandates in 12 states, and have voluntary agreements in 13 others.<sup>65</sup>

Table 5

**1997 State Purchasing Preferences for  
Products with Recycled Content**

State	Products Covered (Percentage Above Market Price)	State	Products Covered (Percentage Above Market Price)
Alaska	All (5%), Paper (10%)	Montana	n/a
Alabama	n/a	Nebraska	n/a
Arizona	Paper (5%)	Nevada	All (5%)
Arkansas	All (10%)	New Hampshire	Paper (5%)
California	All (10%)	New Jersey	All (10%)
Colorado	Plastic (5%)	New Mexico	All (5%)
Connecticut	All (10%)	New York	All (10%)
Delaware	All*	North Carolina	n/a
Florida	All (10%)	North Dakota	All*
Georgia	Paper (8%)	Ohio	n/a
Hawaii	All (5%)	Oklahoma	Paper*
Idaho	n/a	Oregon	All (5%), Printing Paper (10%)
Illinois	All (10%)	Pennsylvania	All (5%)
Indiana	All (10%)	Rhode Island	Paper (5%)
Iowa	Paper, oil, tires (5%)	South Carolina	All (7.5%)
Kansas	Paper (5%)	South Dakota	All (10%)
Kentucky	n/a	Tennessee	Paper*
Louisiana	All (5%)	Texas	Rubberized asphalt (15%)
Maine	Paper (10%)	Utah	Paper (5%)
Maryland	All (5%)	Vermont	All (5%)
Massachusetts	All (10%)	Virginia	Paper (10%)
Michigan	Paper (10%)	Washington	All (10%)
Minnesota	n/a	West Virginia	Paper (10%)
Mississippi	All (10%)	Wisconsin	Paper*
Missouri	All (10%)	Wyoming	n/a

*Notes:* n/a = not available.

\* = no premium, but a preference.

*Source:* Data from "Buy Recycled Laws," *Governing Magazine*, August 1997, p. 52.

In Wisconsin, the state government has been raising the bar for newspapers each year. The requirement rose from 10 percent recycled content in 1992 to 25 percent for 1994, 35 percent for 1996, and 40 percent for 1998.<sup>66</sup> Of 48 publishers affected by the mandate, half were fined for failing to meet the standard in 1997. *The Milwaukee Journal Sentinel* faced the largest fine—\$13,670.<sup>67</sup> In 1998, legislators froze the minimum requirements at the 1996 level and extended the deadline to 2000.<sup>68</sup>

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*Thus far ... government's entry into the demand side of recyclables markets has failed to raise the prices paid for recyclable materials high enough to balance the costs of sorting and processing recyclables.*

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To stimulate recycling markets at the federal level, President Clinton signed Executive Order 12873 in 1993, instructing federal agencies to “increase and expand markets for recovered materials through greater Federal Government preference and demand for such products.”<sup>69</sup> In order to increase federal agencies’ demand for recycled goods, the General Services Administration (GSA), which coordinates procurement for federal agencies, gave recycled-content copier paper a five cent per box discount over regular copier paper. After losing \$500,000 under this plan in 1997, GSA officials decided in February 1998 to offer only recycled-content copier paper to federal agencies without any discount.<sup>70</sup> This change helps GSA’s budget but merely shifts the cost to federal agencies.

Thus far, except for one brief surge, government’s entry into the demand side of recyclables markets has failed to raise the prices paid for recyclable materials high enough to balance the costs of sorting and processing recyclables. In 1995, prices for recyclable materials surged dramatically due in part to President Clinton’s executive order, which stimulated speculation on the profitability of recyclables.

Old newspapers, which make up the highest percentage by weight of materials collected in curbside recycling programs, garnered \$200 per ton on the market in June 1995, then dropped to \$100 per ton in late October 1995. Through the autumn of 1995

and winter of 1996, prices continued to fall and did not rise above \$40 per ton in 1996.<sup>71</sup> In May 1998 old newspaper prices fell further, attracting a price of \$34 per ton.

Recyclables prices have not been raised to a sustainable level by the myriad of laws designed to increase demand for recyclables. Government efforts to raise the price of recyclables through purchasing requirements and mandates have largely met with frustration.

## Conclusion

A reassessment of recycling policy is necessary in view of a decade of experience. Early justifications for recycling were based on several misconceptions, and recycling programs have not been the profit centers municipalities thought they would become. As America enters its second decade of widespread recycling, rates are slowing their increase, and profitable markets for recyclables have largely failed to develop.

A major difficulty that Americans should recognize is that there is no single, simple waste management method that applies to all communities. In constructing an economic model of solid waste management, economist Jannett Highfill and mathematician Michael McAsey came to the conclusion, "Not only is no single recycling plan going to be optimal for all cities, even the barest outlines of the waste management program differs between communities."<sup>72</sup>

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*A major difficulty that Americans should recognize is that there is no single, simple waste management method that applies to all communities.*

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Local governments must return to a fundamental question: What environmental and economic benefits are produced by recycling and at what cost? Cataloging environmental benefits, landfill costs avoided, prices being paid for recyclables, and a number of other factors can be difficult, but is essential to determining whether recycling makes sense for any given community. As politicians and waste professionals consider their options in light of a decade of experience, economic calculations of costs and benefits must go

hand in hand with the non-monetary benefits often cited as justification for continuing recycling programs.

Only a handful of commodities have shown themselves to earn more than the costs that cities on average incur in collecting and sorting recyclables (see Table 3). Despite its significant buying power, government efforts to prop up recycling markets through increasing demand for items such as recycled office paper have been insufficient to make widespread recycling profitable.

In recent years, many have come to recognize a disparity between the role recycling plays at the practical, day-to-day level and what is being discussed by environmentalists and policymakers as serious environmental problems. Frank Ackerman, author of *Why Do We Recycle?*, points out,

Recycling is a favorite topic of books full of “household hints to help save the planet;” nothing, it seems, is better suited for do-it-yourself environmental improvement than household waste. But books analyzing the fate of the earth and the state of the environmental movement have almost nothing to say about recycling and solid waste.<sup>73</sup>

In light of the misperceptions that fueled recycling’s rise and government’s modest progress in developing markets for recovered materials, America should reevaluate its support for recycling. In many cases, funds now spent on unprofitable recycling programs would be better applied to more necessary services. At a minimum, state and local officials would do well to better inform their citizens of the costs and benefits of recycling.

## Notes

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