



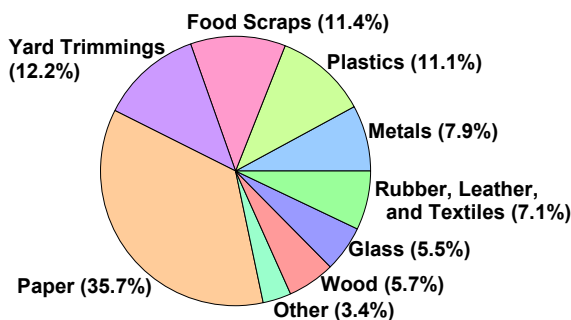
# factsheets

## Municipal Solid Waste

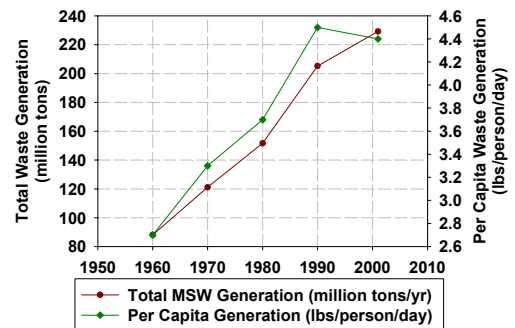
### Generation

Municipal Solid Waste (MSW; commonly called “trash” or “garbage”) includes wastes such as durable goods (e.g. tires, furniture), nondurable goods (e.g. newspapers, plastic plates/cups), containers and packaging (e.g. milk cartons, plastic wrap) and other wastes (e.g. yard waste, food). This category of waste generally refers to common household waste, as well as office and retail wastes, but excludes industrial wastes, hazardous wastes and construction wastes. The handling and disposal of MSW is a growing concern as the volume of waste generated in the U.S. continues to increase.

Municipal Solid Waste Composition, 2001<sup>1</sup>



U.S. Annual MSW Generation<sup>1</sup>



### Generation Statistics

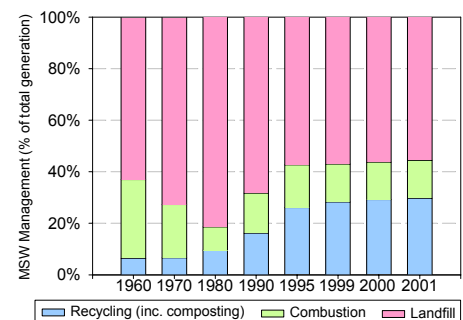
- Total annual MSW generation in the U.S. has increased more than 50% since 1980 to the current level 229 millions tons per year.<sup>1</sup>
- Products included in the packaging and containers category account for 32% of MSW generation. Other products contributing to MSW generation include newspapers (5.3%), office paper (3.2%), clothing (2.9%), and “junk” mail (2.4%).<sup>1</sup>
- Between 1960 and 1990 per capita MSW generation in the U.S. increased 67% including an increase of more than 20% in the 1980’s, but per capita generation has been relatively constant for the past decade.<sup>1</sup>
- At the current per capita rate (4.41 lbs/person/day) the average American generates their own weight (~160 lbs.) in MSW every 36 days.<sup>1</sup> For comparison, MSW generation rates (in lbs/person/day) are 2.9 in Sweden, 3.6 in Germany, and 3.6 in the UK.
- The generation of MSW per dollar of private consumption in the U.S. is approximately 71 lbs. per thousand dollars. Comparable generation rates (in lbs/thousand dollars) are 84 in Sweden, 97 in Germany, and 84 in the UK.<sup>2</sup>

## Management Methods

### Landfill

- Currently, 56% of MSW generated in the U.S. is disposed of in 1,858 landfills.<sup>1</sup>
- While the total number of landfills in the U.S. has been declining steadily, total capacity has remained relatively constant. Current available U.S. landfill capacity is 3,600 million tons; at the current rate this would provide 28 years of disposal.<sup>3</sup>
- Disposal (tipping) fees for landfills in the U.S. currently average \$25 per ton with a high of more than \$72 per ton in Massachusetts.<sup>3</sup>
- Environmental implications of landfill disposal include the loss of land area resources, potential leaching of hazardous materials to ground water (proper design limits this possibility), and emissions of methane (a greenhouse gas) to the atmosphere.
- Landfills are the largest single source of anthropogenic methane emissions in the U.S. accounting for 6.9 million metric tons in 2002.<sup>4</sup> In many U.S. landfills recovery systems reduce methane emissions by 79% through flaring or electricity generation.<sup>5</sup>

MSW Management in the U.S.<sup>1</sup>



<sup>1</sup> U.S. Environmental Protection Agency, October 2003, *Municipal Solid Waste in The United States: 2001 Facts and Figures* (<http://www.epa.gov/epaoswer/non-hw/muncpl/pubs/msw2001.pdf>)

<sup>2</sup> Organization for Economic Co-operation and Development, 2004, *OECD Key Environmental Indicators* (<http://www.oecd.org>)

<sup>3</sup> *The State of Garbage in America*, BioCycle v. 45 no. 1 (January 2004) p. 31-41

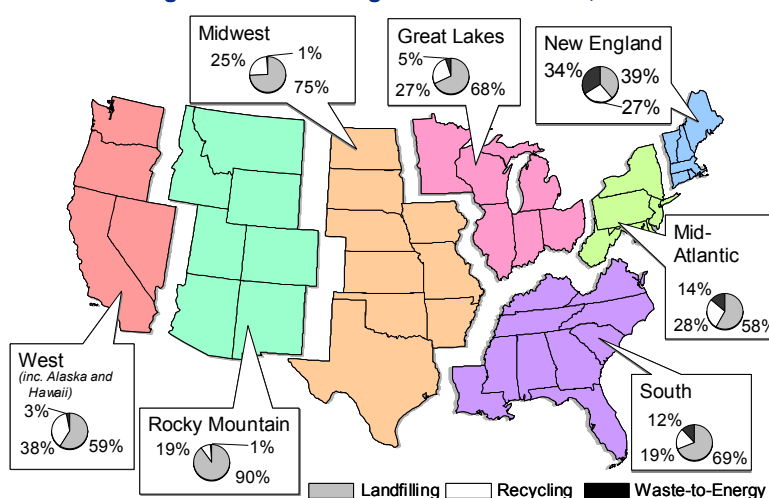
<sup>4</sup> U.S. Environmental Protection Agency, *LMOP Gazette March 2004* (<http://www.epa.gov/lmop/gas/gas.htm>)

<sup>5</sup> U.S. Environmental Protection Agency, May 2002, *Solid Waste Management and Greenhouse Gasses* (<http://www.epa.gov/epaoswer/non-hw/muncpl/ghg/ghg.htm>)

## Combustion

- Currently, 15% of MSW generated in the U.S. is disposed of through waste incineration.<sup>1</sup>
- Combustion reduces waste to ash (a 75% reduction in weight) for disposal in a landfill.<sup>1</sup>
- Waste-to-energy programs that convert MSW into useable energy generated 289 trillion BTU of energy in 2001 (approximately 0.3% of total U.S. demand).<sup>6</sup>
- In 2003, 107 waste-to-energy facilities were in operation in the U.S. with average disposal fees of \$52 per ton.<sup>3</sup>
- The incineration of MSW generates a variety of pollutants (such as carbon dioxide, heavy metals and particulates) that contribute to environmental and human health impacts such as climate change, smog, acidification, asthma, and heart and nervous system damage.

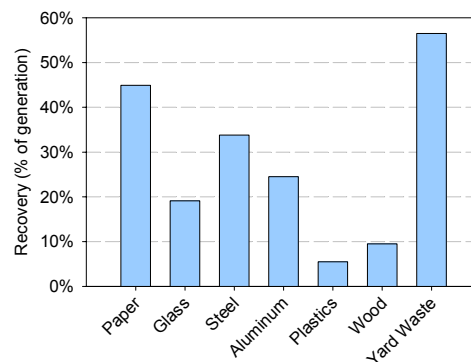
Regional MSW Management Breakdown, 2002<sup>3</sup>



## Recycling and Composting

- Currently, 30% of MSW generated in the U.S. is recovered for recycling or compost diverting more than 68 million tons of material from landfills and incinerators. This is more than double the value from only a decade earlier.<sup>1</sup>
- Recovery of material for composting represents 24% of all material recovery.<sup>1</sup>
- Currently 8,875 curbside recycling programs serve 139 million people in the U.S. The number of curbside programs in the U.S. has increased threefold since 1990.<sup>3</sup>
- Over 70% of cardboard boxes are recovered for recycling; other commonly recycled products include newspapers (60%), office papers (55%), and aluminum beverage cans (49%).<sup>1</sup>

Recovery of Materials in MSW, 2001<sup>1</sup>



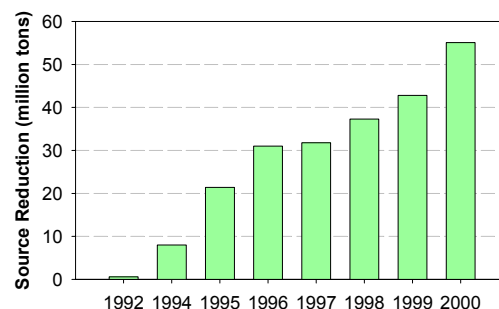
## Opportunities for Improvement

### Source Reduction

Source reduction activities reduce the amount of wastes before they enter the MSW management system. Source reduction activities for consumers include:

- Minimize the volume of packaging material required to deliver products by selecting products packaged efficiently or buying in bulk
- Identify opportunities to reuse products and packaging in the home or community rather than throwing them away or recycling them
- Encourage companies you support to implement source reduction programs and purchase products with post-consumer recycled content
- Reduce consumption of disposable goods and purchase products from reuse centers
- Reduce food waste (26% of edible food is wasted) through efficient meal planning

U.S. Source Reduction (using 1990 baseline)<sup>1</sup>



### Encourage Supportive Public Policy

- Many municipalities have implemented programs (e.g. reuse centers, food rescue) and incentives (e.g. extra capacity fees) designed to limit the volume of waste collection per household
- Only 49% of the U.S. population has access to curbside recycling programs. Implementation of curbside recycling and composting programs where they are currently unavailable can help reduce the burden of waste disposal.<sup>3</sup>
- Currently, at least 38 states do not restrict landfill disposal of some potentially hazardous materials (such as oil, batteries, and electronics).<sup>3</sup> Many of these products and materials are hard to recycle and currently have limited management options.
- Nine states (CT, DE, IA, ME, MA, MI, NY, OR, and VT) have container deposit laws that encourage the return of empty containers for refunds. An additional state (Hawaii) has enacted legislation that takes effect in 2005.<sup>1</sup>

<sup>6</sup> Energy Information Administration, November 2003, Renewable Energy Annual 2002 ([http://www.eia.doe.gov/cneaf/solar/renewables/page/rea\\_data/rea\\_sum.html](http://www.eia.doe.gov/cneaf/solar/renewables/page/rea_data/rea_sum.html))

