Chapter One
Introduction

Spurred by closing landfills and rising disposal costs, recycling and composting programs have swept the nation during the last 5 years. Nineteen states either require municipalities to pass mandatory recycling ordinances or to develop recycling programs. By the end of 1991, there were nearly 4,000 curbside recycling programs in operation-a growth of more than 250 percent since 1988. Yard waste is being diverted to more than 2,000 composting sites. As of the early 1990's, some communities have achieved recycling and composting levels of 40, 50 and even 60 percent. U.S. municipalities are embarking on a new phase in solid waste management in which materials recovery is increasingly becoming a center of activity rather than an afterthought.

This report analyzes the actual operating experience of 30 diverse communities-some with high materials recovery rates, others with model waste reduction initiatives-and draws lessons for communities wanting to strengthen their own programs. Most of the data presented in this report come from in-depth case studies of these 30 communities written by the Institute for Local Self-Reliance.[1] The 30 communities range from rural towns of 2,000 people to metropolitan areas approaching 2 million people. Eight are on or near the West Coast, another eight are in the Midwest, nine are in the Northeast, four in the South, and one in the mid-Atlantic region. Almost half were chosen because of their high recovery levels, either in the residential, commercial/institutional, or construction and demolition debris sector. The other communities were chosen because of their location, population density, or instructive program characteristics, including public or private collection, segregated or commingled set-out, sorting en route versus sorting at an intermediate processing center, curbside versus drop-off, bottle bill, mandatory or voluntary participation, volume-based or flat refuse collection rates. Communities studied included 4 counties and 26 municipalities; there were rural, suburban and urban, large and small communities. These case studies on which this report is based are published by the Institute for Local Self-Reliance as *In-Depth Studies of Recycling and Composting Programs: Designs, Costs, Results,* a book available in three volumes *Rural Communities, Suburbs and Small Cities,* and *Urban Areas.* Readers interested in the details of community operations are encouraged to obtain a copy of the case study reports.

Table 1.1 lists the communities studied, their populations, and materials recovery rates. Chart 1.1 displays their locations. The methodology and terminology utilized in this report are outlined in Appendix A. For instance, construction and demolition debris is excluded from municipal solid waste, and recovery rates for this type of waste are reported separately. Appendix B lists the community contacts who provided the information set forth in the case studies. Materials recovery rates were calculated by the Institute according to the uniform definitions in Appendix A and based on tonnage data provided by state and municipal recycling officials, private waste haulers, waste composition studies, and other community contacts. In a few instances, materials recovery rates utilized in this report differ from those calculated by communities. Appendix C lists any estimates made to calculate waste generation rates, and what waste, if any, was excluded from these calculations. This report considers both recycling and composting to be elements of materials recovery. Recycling refers to recovering discarded products for reuse and/or processing into new products, and composting refers to recovering discarded organic materials, such as leaves and brush, for processing into a soil amendment or mulch. The comprehensive tables throughout this report summarize program features for each community; the text highlights those select programs that provide the most instructive illustration of how communities can increase the recovery of recyclable and compostable materials.

Table 1.1
Selected Recycling and Composting Programs

Community	Population	Year Data Collected	Residential Recovery Rate	Commercial Recovery Rate	MSW Recovery Rate	Total Recovery Rate
Rural Communities						
Bowdoinham, ME	2,189	FY90	NA	NA	54%	53%
Fennimore, WI	2,378	1990	51%	25%	38%	NA
La Crescent, MN	4,305	1990	41%	9%	29%	41%
Monroe, WI	10,220	1989	32%	27%	28%	50%
Peterborough, NH	5,239	1990	42%	4%	19%	18%
Sonoma County, CA	388,222	1990	15%	10%	11%	11%
Upper Township, NJ	10,861	1990	50% (a)	34% (b)	NA	43%
Wapakoneta, OH	9,214	9/89-8/90	NA	NA	20%	NA
Suburbs/Small Cities						
Berlin Township, NJ	5,620	1990	56%	61%	57%	NA
Boulder, CO	88,000	1990	33%	12%	22%	16%
Columbia, MO	69,101	FY90	11%	NA	NA	13%
Dakota County, MN	274,016	1990	29%	24%	28%	NA
King County, WA	991,060	1990	19%	36%	30%	NA
Lafayette, LA	90,000	FY90	13%	8%	11%	NA
Lincoln Park, NJ	10,978	1990	49%	70%	62%	NA
Naperville, IL	85,351	1990	32%	NA	NA	NA
Perkasie, PA	7,878	1990	52%	NA	NA	NA
Takoma Park, MD	16,900	1990	36%	NA	NA	NA
West Linn, OR	16,557	1990	NA	NA	50%	46%
West Palm Beach, FL	62,530	4/90-3/91	22%	0%	13%	12%
Urban Areas						
Austin, TX	465,622	FY89	7%	NA	NA	15%
Berkeley, CA	102,724	FY91	NA	NA	22%	38%
Lincoln, NE	191,972	1990	3%	25%	12%	52% (C)
Mecklenburg Co., NC	511,433	1990	7%	22%	16%	NA
Newark, NJ	275,221	1989	10% (a)	46% (b)	NA	30%
Philadelphia, PA	1,633,826	FY90	6% (a)	16% (b)	12%	11%
Portland, OR	440,000	1990	NA	NA	33%	NA
Providence, RI	160,728	1990	10%	13%	11%	NA
San Francisco, CA	723,959	1990	37%	18%	26%	27%
Seattle, WA	516,259	1990	45%	40%	40%	NA

Key: FY = fiscal year MSW = municipal solid waste NA = not available

Notes: Total waste is the sum of municipal solid waste and construction and demolition (C&D) debris. Recovery rates include material recycled and composted. MSW Recovery Rate may take into account tonnages that cannot be broken down into commercial and residential, such as bottle bill tonnages or landscapers' waste. All recovery rates represent proportions by weight. See Appendix A for definitions of recovery rates calculated above.

(a) Publicly collected waste.

(b) Privately collected waste.

(c) Based on 133,167 tons of C&D utilized as landfill cover. If this tonnage is excluded from waste recovered and disposed, recovery rate drops to 30%.

The case study approach allows us to gather specific information about the individual programs and to understand the interconnection of different program elements. However, the limited nature of our sample means that the lessons identified in this report should be viewed as tentative findings, not statistical conclusions.

One of our principal findings is that any program, even the best, can do better. Consider the Borough of Lincoln Park, New Jersey, which in 1988 reported a 40 percent materials recovery rate-- rate that increased to 53 percent in 1989, and to 62 percent in 1990. Lincoln Park continues to expand its recycling efforts.[2] Lincoln Parks success demonstrates that materials recovery rates of 60 percent and higher are technically achievable for communities that integrate the best features of the best programs.

Factors that contribute to reaching high recovery levels include targeting a wide range of materials for recovery, offering convenient service (curbside and drop-off collection are both important), employing collection and processing techniques that encourage resident participation as well as yield high-quality materials, establishing strong economic incentives-particularly volume-based refuse rates, collecting source-separated yard waste for composting, encouraging backyard composting, and extending programs beyond the residential sector to the commercial and institutional sectors.

Market development is essential if collected materials are actually to be utilized. While this report does not examine marketing strategies, Appendix D describes local government programs to procure recycled goods. Today, conventional wisdom about recycling dictates that it can be connected to local economic development through remanufacturing, producing new products from recovered materials. While we strive to build a national scrap-based manufacturing industry, we must first ensure efficient, cost-effective recovery of materials from our waste stream.

Notes

[1]Data from the 30 communities is usually not referenced; data from other research are typically referenced and placed in side boxes within the text.

[2]In an effort to further increase its recycling rate and to augment its municipal drop-off collection program, Lincoln Park will begin curbside collection of a wide range of recyclable materials in August 1992.

Chart 1.1
Location of the Study's 30 Materials Recovery Programs