

A national survey of local government recycling programs

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A survey of recycling programs identifies factors that correlate with high participation rates.

A mail survey was used to identify recycling policies, strategies and practices used by communities and determine ones that are used by the cities reporting a higher rate of citizen participation in recycling and greater waste stream diversion through recycling.

The question, "What works and why?" in community recycling was considered to be important. Comparative analyses of community recycling program can help answer this question. More informed judgments about recycling program design or modifications can be made if information about other local government recycling experiences is available.

Survey methodology

In spring 1990, mail questionnaires were sent to 450 cities in 25 states identified as operating a solid waste recycling program. Recycling coordinators in 264 cities responded, a return rate of about 60 percent. The survey included all cities for which the names and addresses of recycling coordinators could be obtained and a 10 percent sample of New Jersey cities. Geographically, 55 percent of the responding cities are located in the Northeast, 23 percent are in the Midwest, 15 percent in the West or Mountain states, and 7 percent are in the South or Border states.

The population distribution of the responding cities is similar to that for all cities with recycling programs:

Under 5,000	28 percent
5,000 to 10,000	17 percent
10,001 to 25,000	23 percent
25,001 to 50,000	11 percent
50,001 to 100,000	9 percent
Over 100,000	12 percent

Program types and characteristics

Two-thirds of the responding cities operate some type of voluntary recycling program; the other one-third mandate the collection of at least some materials. Of the 175 voluntary recycling programs, 109 (62

percent) provide curbside pickup of recyclables while 66 (38 percent) offer one or more locations for drop-off of recyclables. Virtually all of the cities with mandatory programs have curbside recycling collection service.

While all recycling programs include single-family residences, 80 percent also include multi-family residences (duplexes or above) in their programs. About 59 percent include both types of residential customers as well as local businesses. Just over half of the responding communities (55 percent) include residential, business and public institutions in their recycling programs. More than two-thirds of all responding programs collect newspaper, mixed paper, and glass, aluminum and plastic containers.

Table 1 ranks the importance of the problems that the respondents have encountered in their recycling programs. Problems related to finding markets for recyclables, getting more citizens to participate, and securing adequate funding for the recycling program are the most important and most common difficulties in operating a recycling program. This summary focuses on the problem of maximizing participation in recycling.

Citizen participation and waste diversion rates

Recycling coordinators for mandatory recycling programs report a significantly higher rate of recycling participation than do coordinators for voluntary programs. As Table 2 shows, the mean rate for participation by eligible households is 74.3 percent in mandatory programs versus 39.7 percent in voluntary programs. In voluntary programs that provide curbside recycling collection, the mean participation rate is 48.6 percent. In voluntary drop-off programs, the average rate of participation is estimated by coordinators to be just under a quarter (24.6 percent) of eligible households.

There is a strong, statistically significant

■ **Table 1 — Importance of problems of municipal recycling programs (N = 264)**

Problem	Mean score	Rank
Finding markets for recyclables	4.15	1
Getting residents to participate in the program	3.70	2
Lack of sufficient state grants or other financial assistance	3.50	3
Securing adequate local government financial support	3.40	4
Obtaining information/technical assistance	2.83	5
Theft of recyclables	1.76	6

(1 = not important; 5 = very important.)

■ **Table 2 — Participation and diversion rates by program type (N = 264)**

Type	Mean participation rate	Mean diversion rate
Mandatory	74.3%	21.6%
All voluntary	39.7%	12.2%
With curbside pick-up	48.6%	12.3%
With drop-off facilities only	24.6%	10.8%

relationship between the participation rate and the percentage of the waste stream that is diverted from disposal by recycling. Respondents report that, on average, mandatory programs divert 21.6 percent of the total annual solid waste volume, while voluntary programs divert about half as much (12.2 percent). Regardless of program type, all curbside pick-up programs average 16.95 percent diversion.

Operational features of programs

Several program policies, strategies and practices are characteristic of communities with higher rates of recycling participation by local citizens. The "r" in Table 3 indicates the strength and direction of these relationships. (An "r" that is close to zero (0) indicates little or no relationship between the variables. An "r" of one (either +1 or -1) indicates a perfect relationship. Generally, a correlation or "r" of less than .10 is weak, .10 to .20 is moderate, .21 to .30 is moderately strong; and

correlations larger than .30 indicate stronger relationships. Statistical significance indicates how likely it is that the association measured between two variables is wrong. The accepted standard in policy research is .05, indicating that there is a 5 percent probability that the association (correlation) is incorrect or, in other words, a 95 percent chance that it is correct.)

There is a strong association between program type and citizen participation in recycling. Cities with mandatory programs and those with curbside pickup of recyclables have higher rates of citizen participation.

Communities that provide their residents with one or more containers in which to place recyclable materials also have higher rates of citizen participation. (The most common size of these containers is 14 gallons.)

Recycling participation is higher in mandatory programs with sanctions or warn-

■ **Table 3 — Pearson correlations between citizen participation in recycling and operational characteristics**

Factor	r	Sig.	N
Program type	.56	.000	244
Voluntary = 0			
Mandatory = 1			
Curbside pickup	.38	.000	245
No = 0			
Yes = 1			
Provision of containers	.12	.061	170
No = 0			
Yes = 1			
Sanction or reminder	.49	.000	172
No = 0			
Yes = 1			
Recyclables collected by a private contractor	.22	.000	244
No = 0			
Yes = 1			
Composting used as a method of solid waste disposal	.13	.01	240
No = 0			
Yes = 1			
Collection the same day as garbage	-.015	.422	170
No = 0			
Yes = 1			
Separation	0.28	.355	172
Not required = 0			
Required = 1			

ings for noncompliance. It is also higher in voluntary programs with policies that permit city officials to issue verbal or written reminders to non-participants.

Approximately 40 percent of responding cities report that a private contractor collects recyclable materials. Participation in recycling is higher in these communities, as indicated by the fairly strong .22 correlation in Table 3.

Finally, citizen participation is higher in communities that use composting as a

method of handling degradable solid wastes.

Unexpectedly, two policies thought to enhance the ease of convenience of recycling, proved to be unrelated to citizen participation in recycling. First, as Table 3 shows, recycling participation is not related to collecting recyclables on the same day as garbage. Where residents set out recyclables on a different day than garbage is collected, participation may not decline. Local officials may wish to consider whether additional equipment purchases are necessary if existing equipment can be used to collect both garbage and recyclables on different days.

Second, requiring residents to separate recyclable materials by type into different containers is unrelated to participation. This implies that curbside separation of commingled recyclables by waste collectors could be unnecessary if waste generators are willing to do this task. Since there is no difference in reported participation rates between cities that do or do not require source separation by type of recyclable material, such a policy is apparently not perceived to be inconvenient.

Citizen participation in the design of voluntary programs

Recycling typically requires citizens to change their waste disposal behavior. The long-term success of a recycling program ultimately depends on the sustained practice of recycling by many types of households and businesses. Communi-

The survey was designed to determine what works and why in community recycling programs.

ties that place more importance on the involvement of citizens and consider their opinions in recycling program design may have higher rates of participation in the actual recycling program.

The correlations in Table 4 offer some support for this hypothesis. The communities with higher recycling participa-

tion rates are those where considerable importance in the program design decision process was placed on local government staff analysis, citizen opinion surveys, meetings with community groups, and advice or assistance from nonprofit or volunteer groups with experience in recycling.

Public education strategies and incentives

Table 5 lists the strategies that are associated with higher recycling participation rates. It appears that citizens are best educated about recycling through the use of pamphlets, brochures or bumper stickers, which are often included in utility bill mailouts. Also, neighborhood or community information meetings, paid newspaper advertisements and speeches by local government officials to schools and local groups about recycling are used by cities that have higher participation rates. On the other hand, some communities with lower participation rates have used paid radio commercials and billboard advertisements.

Several incentives to increase participation were listed in the mail question-

naire: public recognition, prize contests, tax credits, cash awards, disposal fee discounts or rebates, and campaigns by local scouts to encourage recycling. Of these, the only statistically significant relationship involves official public recognition of recycling efforts by local groups or individuals. Communities that have adopted this practice tend to have a higher rate of participation in recycling.

Conclusion

The findings of this survey do not imply any causal relationships; they indicate only that communities with higher rates of citizen participation in recycling have certain program characteristics in common. We suggest local opinion surveys or a series of community meetings to assess the extent of citizen support for, and understanding of, any contemplated alternative strategies to recycle solid wastes.

In future analysis, we hope to offer causal explanations that account for the effects of both controllable program policies and the "uncontrollable" characteristics of communities, such as population, education, income, or age that might affect participation and diversion rates.

■ **Table 4 — Correlations between participation in voluntary recycling programs and the importance of factors in the program design decision process**

<u>Factors</u>	<u>r</u>	<u>Sig.</u>	<u>N</u>
Citizen opinion surveys	.16	.02	147
Meetings with community groups	.12	.06	147
In-house local government staff analysis and study of recycling	.29	.00	147
Advice or assistance from nonprofit or volunteer organizations with recycling expertise	.11	.08	150

■ **Table 5 — Correlations between participation in recycling and public education strategies and incentives**

<u>Strategy</u>	<u>r</u>	<u>Sig.</u>	<u>N</u>
Pamphlets, brochures, bumper stickers	.16	.00	241
Neighborhood or community information meetings	.14	.01	241
Paid newspaper advertisements	.10	.04	240
Speeches by officials to schools or local groups about recycling	.09	.07	241
Paid radio commercials	-.13	.01	240
Billboard advertisements	-.10	.04	241
Official public recognition of recycling efforts	.18	.00	239