

STRATEGIC IMPLICATIONS OF CURRENT SMALL BUSINESS WASTE REDUCTION PROGRAMS

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ABSTRACT

The strategic importance of environmental awareness has received a great deal of recognition recently, but attention has centered primarily on residential or municipal recycling and waste reduction efforts. The small amount of research done on commercial waste reduction policies has focused on the attitudes and programs of large corporations. As governmental agencies impose waste reduction mandates on communities and corporations, many small businesses will be forced to adopt waste reduction programs in the future. In addition, a growing body of evidence suggests that environmental programs are associated with profitability, indicating the need for a more strategic approach to the management of environmental issues in order to effectively administer required programs. This study presents results of survey research indicating that small businesses are willing to commit to strategic waste reduction programs, but are concerned primarily with the convenience of such programs. Although convenience is frequently related to operating cost in small businesses, issues regarding the expense of waste reduction programs are of secondary concern to small business executives. The implications of these results are discussed, along with recommendations for small business executives, consultants, and policy makers.

ENVIRONMENTAL REGULATIONS AND CORPORATE RECYCLING

In a recent survey of 12,000 managers throughout the world, Kanter (1991) found that the condition of the environment was the second most important social issue in the world today, slightly trailing work force education. Surprisingly, over 90 percent of the managers surveyed believed businesses should take primary responsibility, or at least an active role, in solving these

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environmental problems. Attitudes such as those described in the Kanter study have given rise to the concept of economic sustainability or sustainable growth (Reilly, 1990). While sustainable growth is in reality a paradigm more than a theory, it does suggest that firms will be concerned with resource conservation and waste management (Ilinitch & Schaltegger, 1993). Within the context of economic sustainability, businesses are re-examining the cost of their waste streams and instituting waste reduction programs such as recycling. Simultaneously, governments are becoming more active in mandating waste reduction (Sharfman & Ellington, 1993). For instance, California has passed initiatives requiring cities and counties to reduce land-filled waste by 50 percent in the next decade (Edwards et al, 1991). Likewise, many state legislatures and other governmental agencies are considering laws to regulate waste generation (Geiser, 1991). If trends in Europe are any indication of the future of environmental regulation, businesses may have to rethink their entire packaging and distribution technologies in response to environmental regulations. For instance, in an effort to substantially reduce waste generation, Germany has recently enacted the toughest environmental laws in history (Strong & Strong, 1993).

While business managers are concerned enough to consider self-administered programs (Kanter, 1991) and governmental institutions are enacting legislation to regulate waste reduction, the public is exerting social and market pressures on businesses as well. Sixty percent of Americans blame businesses for the state of the environment (Schwartz & Miller, 1991), and with this concern, "green marketing" has emerged as a source of competitive advantage. Russo and Fouts (1993) found that markets generally react favorably to environmentally sensitive corporate policies and programs, resulting in increased profits for firms perceived as "green". This market trend shows no sign of reversal in the near future. All factors indicate that some form of waste reduction policy will be forced on businesses, either through governmental, industrial, or market pressures (Carson & Moulden, 1991).

Small business owners and managers may not be completely aware of the competitive necessity or strategic importance of waste reduction and resource preservation policies. A recent study indicated that small business owners/managers did not view the use of non-renewable resources as a pressing social concern even though their overall social responsibility concerns were similar to the managers of large corporations (Peterson, 1991). In fact, less than ten percent of small businesses include environmental management issues in their business planning (Nafziger & Kuratko, 1991). These findings suggest that small business owners and managers may be ill-prepared for impending waste reduction regulations and their impact on business operations. Furthermore, it appears that small business executives are not maximizing their opportunities with customer segments seeking to patronize businesses that manage their waste in an environmentally sensitive manner. In summary, small businesses need to become much more aware of the strategic importance of waste reduction and waste management programs.

In light of the trends discussed above, the present study was designed to 1) advance our understanding of small business executives' awareness of waste reduction/resource conservation issues, 2) examine their perceptions of the strategic importance of these issues, and 3) identify the primary concerns of small business executives regarding the implementation of waste reduction programs in their firms. After describing the methodology employed in this study, results and their implications for small businesses are discussed in detail.

PURPOSE AND METHOD

Purpose

Given the likelihood of future waste reduction requirements, it is important for small business owners and managers to develop green strategies and environmental auditing techniques (Carson & Moulden, 1991). The purpose of this study is to ascertain current small business practices regarding recycling programs and to identify primary areas of concern in their implementation. It is hoped that such information will assist small business in developing:

1. Proactive, cost effective strategic plans for managing the impact of waste reduction regulations,
2. Better environmental education and awareness programs to aid in the implementation of waste reduction programs,
3. Cognizance among government officials regarding the dominant concerns of small business managers so as achieve cooperative and fair policies and regulatory programs, and
4. Knowledge among small businesses of market opportunities associated with recycling and other waste reduction initiatives.

To achieve these purposes, a survey questionnaire was developed and administered to small business managers. The methodology utilized in this study is described in the following section.

METHODOLOGY

Data for this study were collected through a mail survey of business organizations located in one county of an industrialized midwestern state. This state mandates that by 1996, 25 percent of each county's waste stream be recycled. Systematic random sampling was used to select 500 small businesses from approximately 2,500 listed in the area's phone directory. Of the 500 questionnaires mailed, 144 were returned. The response rate of approximately 30 percent was achieved through administering the survey under the auspices of the County Office of Solid Waste Management. Of the 144 participating firms, 137 (over 95 percent) had fewer than 100 employees and, of these, 126 (92 percent) had fewer than 50 employees. Of the 7 with 100 or more employees, 2 were involved in retailing, 2 were office operations, 2 were restaurant and lodging businesses, and 1 was a delivery service. Of the businesses participating in the study, 22 percent classified themselves as retail establishments, 29 percent as offices, 9 percent as manufacturing, 4 percent utilities/transportation, 4 percent restaurants/hotels, and 32 percent as other (e.g., lawn care, electrical repair, beauticians, wholesale, delivery service, medical laboratory). Eighty-five percent of these small businesses were privately owned.

The survey instrument included a wide variety of questions related to such issues as the extent of the organization's current involvement in recycling, structure of the recycling program, type of materials recycled, logistics of recycling, and reasons for engaging in/refraining from recycling. Data regarding these issues were analyzed primarily through chi-square tests of independence, as well as t-tests.

RESULTS

Table 1 profiles the participating small businesses with respect to their recycling activities. Based upon the results presented in the table, 64 percent of all participating businesses did engage in some type of recycling activity. However, this proportion varied by type of business. Manufacturers (92.3 percent) led all other industries, followed by utilities/transportation (80 percent), and retailers (71.9 percent). On the other hand, only one-third of all restaurants and lodging organizations included in the survey appeared to recycle. Of the 92 businesses that did recycle, over one-third had formal recycling programs, approximately 41 percent had stated policies regarding recycling, and approximately one-half had a designated recycling coordinator who reportedly spent less than five hours per week managing recycling activities. Compared to non-recyclers, recyclers also were significantly more committed to the purchase of recycled materials. While recyclers were almost twice as likely to actively seek products made from recycled materials, they were more than three times as likely to have stated policies regarding the purchase of such goods.

Table 1
Recycling Profiles of Surveyed Small Businesses

	Recyclers n = 92 (64%)	Non-Recyclers n = 52 (36%)	Chi-Square
Type of Business:			
Office (n = 42)	52.4%	47.6%	11.9**
Retail (n = 32)	71.9%	28.1%	
Manufacturing (n = 13)	92.3%	7.7%	
Restaurants/Lodging (n = 6)	33.3%	66.7%	
Utilities/Transportation (n = 5)	80.0%	20.0%	
Others (n = 46)	63.0%	37.0%	
Have Formal Recycling Program	35.6%	0.0%	23.5***
Have Stated Recycling Policy	41.1%	0.0%	28.9***
Have Policy Regarding Purchase of Recycled Materials	18.9%	5.9%	4.5**
Actively Seek Products Made from Recycled Materials	32.6%	16.7%	4.0**

- * $p < 0.10$
- ** $p < 0.05$
- *** $p < 0.01$

Table 2 presents the results regarding the type of waste materials produced and recycled by various types of businesses.

Table 2.

Type of Waste Material Produced and Recycled

	Type of Business:					
	Office (n = 42)	Retail (n = 32)	Mfg (n = 13)	Rest/Lodg (n = 6)	Util/Trans (n = 5)	Other (n = 46)
Mean Ranking of Amount of Waste Material Produced (1 = Most, 6 = Least)						
Paper (1.8)	1.2	2.1	3.2	2.0	2.6	1.5
Cardboard (2.4)	2.9	1.6	2.9	1.8	2.4	2.5
Metals (3.5)	3.1	3.7	2.8	5.2	3.3	3.6
Plastics (3.6)	4.0	3.0	3.6	4.0	3.4	3.6
Glass (4.4)	4.3	4.4	4.7	4.0	5.0	4.5
Other (3.7)	4.8	3.7	3.0	1.5	1.0	3.6
Percent of Businesses That Recycle Various Waste Materials						
Paper	38.1	40.6	38.5	0.0	50.0	32.6
Cardboard	9.5	50.0	38.5	33.3	60.0	26.1
Metals	45.2	37.5	76.9	0.0	20.0	47.8
Plastic	19.0	9.4	23.1	0.0	0.0	21.7
Glass	21.4	6.3	15.4	33.3	0.0	19.6
Other	2.4	15.6	38.5	0.0	40.0	15.2

Across all types of businesses surveyed, paper was the most produced waste product, followed by cardboard, metals, plastics, and glass, respectively. As might be expected, paper was reported to be the leading waste material produced by offices, while cardboard led all waste materials produced by retailers. Manufacturers, on the other hand, reported metals as their leading waste product. Finally, other types of waste (e.g., foodstuffs, chemicals, airborne particles) seemed to be the dominant waste produced in restaurants/lodging establishments and utilities/transportation firms. It is also interesting to note that cardboard is either the first or second ranked waste item reported by every type of business included in the study.

Businesses are also different with regard to the type of materials that they recycle. Forty-five percent of all offices recycle metals (mostly aluminum cans), and 38.1 percent recycle paper. One-half of all retailers recycle cardboard, and more than 40 percent recycle paper.

Approximately three-quarters of the manufacturers surveyed recycle metals, while less than 40 percent recycle paper and/or cardboard. One-third of all restaurant/lodging businesses in the study reported recycling cardboard or glass. Finally, cardboard and/or paper were reportedly recycled by at least one-half of surveyed utility/transportation firms.

Table 3 summarizes the logistics involved in dealing with recyclables. The proportion of businesses that have waste paper picked up by a waste management contractor or community recycling organization is almost twice that of firms which deliver this type of waste to drop off points (17.5 percent versus 9.5 percent). The inverse of this relationship is true for plastics, but the overall percentages are smaller (3.2 percent versus 6.3 percent). For cardboard, the percentage of firms utilizing each of these collection approaches is the same (11 percent). The ratio of delivery to pick-up, however, is almost 4 to 1 for metals and 3 to 1 for glass. Overall, 2 1/2 times more businesses deliver their recyclables than those that have them picked up. Also, the survey results indicated that 28 percent of businesses that recycle are charged for material pick-up, and 27 percent sell their recyclables.

Table 3

Logistics of Dealing with Recyclables

Type of Material	Percent of Businesses That Had Their Recyclable Materials	
	Picked-up by Recyclers	Delivered to Recyclers
Paper	17.5	9.5
Cardboard	11.1	11.1
Metals	7.9	30.2
Plastics	3.2	6.3
Glass	1.6	4.8
Other	9.5	4.8
All Materials	19.0	50.8

When respondents were asked to evaluate the importance of various reasons for engaging in or refraining from recycling, some interesting results emerged (see Table 4). The most compelling *factors in favor* of recycling, in the view of both recyclers and non-recyclers, appeared to be concern over the environment, and convenience related issues (e.g. pick-up, container availability, etc.). In fact, convenience seemed to be even more important to non-recyclers than recyclers. The greatest *obstacles deterring* small businesses from recycling, as perceived by both groups, were cost and space constraints. Interestingly, these factors were considered to be more of an obstacle by non-recyclers than by their recycling counterparts. These findings were generally reaffirmed when respondents were asked, in open-ended questions, to outline the three most important reasons for recycling and for not recycling. However, the importance of cost diminished in relation to other factors (e.g., convenience). The most compelling reasons stated for recycling included environmental concerns (60 percent), followed by cost savings (23 percent), and legal requirements/mandates (2 percent). Those indicating legal mandates were all involved in businesses generating chemical waste (e.g., air conditioning refrigerants and petrochemical waste). The most important deterrents to recycling that were mentioned included

required time commitment (37 percent), storage space limitations (27 percent), costs involved (19 percent), small volume of business (15 percent), lack of information regarding recycling (8 percent), and the absence of pick-up services (6 percent).

Table 4

Reasons for Engaging in/Refraining from Recycling

	Mean Importance ^f (std. dev.)		
	Recyclers	Non-Recyclers	t-Test
<u>Engaging in recycling</u>			
Concern for Environment	4.6 (0.8)	4.3 (1.0)	2.10*
Convenience of pick-up	4.1 (1.2)	4.4 (1.0)	1.42
Waste containers provided	3.7 (1.4)	4.2 (1.1)	2.27*
Reimbursement for recyclables	2.7 (1.5)	2.7 (1.6)	0.05
Other financial advantages	2.8 (1.5)	2.8 (1.6)	0.25
<u>Refraining from recycling</u>			
Pick-up costs	3.6 (1.2)	4.1 (1.1)	2.55**
Storage space required	3.5 (1.2)	3.9 (1.3)	1.93*
Time required	3.3 (1.3)	3.7 (1.4)	1.88
Cost of handling/separating	3.2 (1.4)	4.0 (1.4)	2.91**
Lack of employee commitment	2.7 (1.3)	2.7 (1.5)	0.03

^f1 = not important, 5 = very important

* $p \leq 0.05$

** $p \leq 0.01$

*** $p \leq 0.001$

Perceptions of small businesses regarding other issues that are likely to impact behavior also were examined. These results are shown in Table 5. It was found that a significantly larger proportion of recyclers, when compared to non-recyclers, had the strong support of employees coupled with commitment from management for recycling. Also, a significantly larger portion of recyclers viewed recycling as being important to their customers, as well as a potential source of competitive advantage. Furthermore, almost half of all small businesses surveyed (both recyclers and non-recyclers) also indicated that recycling does/would result in a reduction of waste disposal costs. Finally, an overwhelming majority of recyclers and more than one-half of non-recyclers reported that, given the opportunity, they would be interested in participating in a waste exchange arrangement with other businesses in the community.

Table 5*Other Perceptions of Small Businesses Regarding Recycling*

Proportion that reported	Recyclers (n = 92)	Non-Recyclers (n = 52)	Chi-Square
Employees are committed to recycling	81.2	28.3	35.70***
Management is committed to recycling	83.9	38.8	29.17***
Recycling is important to customers	47.4	23.8	6.40**
Recycling is a competitive advantage	21.8	6.1	5.71*
Recycling reduces cost of waste disposal	52.3	45.8	0.52
An interest in a waste exchange program	81.0	57.9	7.04**

* $p \leq 0.05$ ** $p \leq 0.01$ *** $p \leq 0.001$ **IMPLICATIONS**

It is important to note that less than one-quarter of respondents specified cost reduction as a reason for starting a recycling program and only two percent cited legal responsibilities. The majority of businesses appear to be recycling out of concern for the environment, rather than for strategic reasons. Enacting a waste reduction program out of concern for the environment is indeed a noble undertaking. However, as more and more states/counties/municipalities enact waste reduction legislation, as more consumers demand business accountability for waste minimization, and as competitors successfully differentiate themselves on environmental issues, companies failing to treat waste reduction as a strategic issue will soon find it harder and harder to compete.

As reviewed above, only 16 percent (21.8 percent of recyclers; 6.1 percent of non-recyclers) of the small businesses surveyed viewed recycling as a strategic opportunity to achieve competitive advantage. This result is consistent with prior research indicating that small businesses are very uninformed of the impending impact of waste reduction initiatives and are likely to be forced into reactive postures when developing policies to deal with waste reduction (Winsemius & Guntram, 1992). Conversely, most large businesses are already incorporating environmental issues, including waste reduction, into their strategic plans ("Environment is first..." 1991; Geiser, 1991). Because of the pervasiveness of impending environmental regulation, small businesses will have to follow suit or face a noncompetitive position in the future (Hutchinson, 1992). Small businesses must begin to consider waste reduction strategies, such as corporate recycling programs, as competitive weapons for ensuring continued profitability and/or viability.

One of the purposes of this study was to gather information that could be used to inform governmental agencies, environmental action groups and small business counselors (e.g., SBI directors) of the primary concerns among small business executives regarding recycling. Comparisons between recycling and non-recycling companies indicated that monetary issues are not as important to either group as are convenience issues. It is important to note that convenience and operating cost are not unrelated, especially for small businesses. However, for the purposes

of the current study, cost factors were described as the presence or absence of financial incentive and/or reimbursement for recycling. There are obviously other costs associated with recycling, particularly administrative expenses, but it appears that out-of-pocket expense factors did not greatly influence the decision of companies to start a recycling program. Similarly, cost factors are only of moderate concern to those companies currently not recycling. It appears that economic issues are not the driving force behind the decision to either initiate or not initiate recycling programs.

Lack of employee commitment and time requirements were not mentioned as compelling reasons for not instituting a recycling program. The results of the survey suggest that small businesses and their employees will provide the necessary time, space, and labor to make recycling work if recycling can be made convenient. The most significant factor differentiating recyclers from non-recyclers was the issue of convenience. Convenience encompasses such items as whether recycled materials need to be separated at the site, how much labor is involved in such separation, whether recycled materials will be picked up or will have to be delivered, and whether collection bins will be provided by the community/commercial recycler or whether the firm will have to provide the bins and the storage space. This is clearly the most important area of concern for small business owners and managers. Local governments, environmental groups, recycling and solid waste management companies, and small business consulting groups should develop joint programs and build alliances to improve the convenience of recycling programs.

It seems that small businesses are willing to engage in waste reduction activities such as recycling, but will refrain from doing so if the process of recycling is inconvenient. Municipalities and solid waste management firms attempting to convince community businesses to implement waste reduction and recycling programs should concentrate their resources on convenience enhancement, perhaps even if it means raising the cost of such programs (within reason, of course). Some suggestions for improving the convenience of waste reduction may be feasible at the governmental level. However, social responsibility-based strategies is an area where small businesses appear to be able to differentiate themselves (File, Moriya, & Judd, 1991). That is, social concerns about resource conservation and waste reduction may create business opportunities for many small businesses, particularly those already in the waste management field. In addition, property managers (e.g., industrial park developers, shopping mall managers, etc.) and small business consultants can offer specialized services aimed at increasing the convenience of waste management programs for small businesses.

Solid waste management firms, property managers, small businesses, small business consultants, and government agencies should work at developing alliances and cooperative programs aimed at improving the convenience of recycling. Such cooperative approaches will result in waste minimization programs which are cost effective yet mutually acceptable to small businesses and their stakeholders, including local governments. This may include such business ventures as total on-site waste reduction contracting, wherein an outside contractor will sort and transport recycled materials from a group of businesses (e.g., stores in a shopping mall) for a fee. Such an arrangement is currently in use at the Mall of the Americas in Minneapolis-St. Paul. Another option is to establish community-based central processing and sorting plants in industrial/commercial districts utilizing a coordinated pick-up and distribution system.

Recently, concerns have been expressed that government and environmental action groups have expended a majority of their efforts on getting companies (and individuals) to recycle without recognizing the need to create and sustain markets for recycled products (Hutchinson, 1992; Schwartz & Miller, 1991). This is particularly true for paper and paper products, such as

cardboard and newsprint, of which there is a great supply. However, little demand exists for these recycled waste products owing to the limited number of post-recycling uses. While much attention in the press concentrates on wastes such as Styrofoam, disposable diapers, and fast-food hamburger packaging, these types of waste actually represent a very small portion of overall land-filled waste compared to paper, which comprises almost 35 percent of all land-filled waste (Rathje & Murphy, 1991). Small businesses and small business consultants could specialize in developing such post-recycling product markets through research and development cooperatives or waste exchange programs. It is conceivable that one company's waste may very well provide another company's energy source or raw material, if only some agent were present to bring them together. Business opportunities abound for small businesses to become those agents.

As part of a follow-up analysis to the study reported here, it was found that small business owners and managers who do not recycle may not be aware of existing recycling services in the community. Managers of companies with recycling programs in place were almost six times more likely to recognize the names of recycling and solid waste management companies in the community as compared to managers of non-recycling companies. It would appear that environmental agencies, recycling organizations, and local governments must do a better job of informing small businesses of the recycling opportunities available in the community. Once convenience issues have been addressed, public/private cooperation in presentations at employee meetings and other joint educational efforts may be used to foster commitment to and awareness of recycling and waste exchange programs.

It is apparent that small businesses are not likely to escape approaching waste reduction regulation. As such, small business executives will have to rethink how strategies and policies are developed within their companies to emphasize the growing strategic importance of environmental issues. Such change need not be viewed as a threat, however. If small business executives are proactive and creative, the new emphasis on waste reduction can provide firms with a new dimension for differentiation, expanded product markets, opportunities for service contracting, and untapped areas for cost reduction.

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