Local government approaches to source reduction

Many states have mandated that source reduction receive the highest priority of all waste management strategies. Local governments are eager to find ways to reduce the generation of solid waste. However, understanding how to translate this aim into realistic programs at the local government level has yet to keep pace with state mandates.

A comprehensive approach to source reduction requires the participation of an interrelated web of waste generators, including residents, businesses and institutions, and local, state and federal government policymakers.

Source reduction decreases the quantity of materials that must be collected and processed via recycling, composting, incineration and landfilling. Source reduction can be defined as the decreased generation of solid waste resulting from:
- reduced product weight or volume
- reduced packaging
- increased product durability and reusability
- alterations in consumer behavior regarding purchase patterns
- greater efficiency in manufacturing processes, resulting in lower generation of wastes
- on-site composting and related organic waste reduction techniques
- alteration of the waste stream to make it less hazardous.

General approaches
Local governments can draw on several approaches to propel source reduction into its proper position as the leading component of solid waste management. The following discussion centers on ways to reduce the amount of solid waste generated by all sectors.

Public education and publicity
A local government could supervise the development and distribution of source reduction education materials, provide general coordination of efforts, and fund a sustained program. A comprehensive source reduction education and promotion campaign targets consumers, businesses and institutions, including schools. Each of these groups merits specific attention. The more tailored the education and promotion campaign is in addressing the needs and interests of various groups and sub-groups, the more successful the overall program is likely to be.

A public education and promotion campaign for source reduction should focus on changing the values and behavior patterns of individuals and organizations. The following values, among others, should be highlighted: environmental protection and pollution prevention; energy and resource conservation; cost effectiveness; ingenuity; simplicity; pursuit of community spirit; and excellence rather than consumption.

One type of public education and promotion program a local government could institute is known as an “environmental shopper” or “precycle” campaign. This program provides consumers with suggestions or tangible examples of direct substitutes for products or packaging, in support of waste reduction goals. An environmental shopper campaign, such as that originally developed by the Pennsylvania Resources Council, a consumer advocacy group, and now officially endorsed by the Pennsylvania Department of Environmental Resources, involves the distribution of a booklet that advises consumers to purchase items in reusable, recyclable or minimal packaging; avoid purchasing single-use, disposable items; and write to or telephone manufacturers to encourage them to shift to reusable and recyclable materials. The booklet could include available lists of “environmentally friendly” products. It could also include advice on how local consumer groups can organize environmental shopping campaigns in their communities.
This education campaign could be supported directly by local governments, in conjunction with local civic and consumer groups. This type of arrangement is in place in Pennsylvania, where an industry group, the Pennsylvania Food Merchants Association, works with PRC to promote waste reduction to the local government within the state. Source reduction themes can be used effectively in various media, including bus public service announcements on radio and television, buttons and posters. Alert consumers to the relationship between consumption patterns and the solid waste crisis. Berkeley, California and Newark, New Jersey, among others, have adopted this approach. These publicity and education techniques can also be employed at the workplace, where a company or institution launches its own "pre-cycle" project. Admittedly, while some business efforts to promote environmental shopping have been criticized by several recycling proponents as superficial, off-target and ineffective, some businesses have indeed developed consistent, comprehensive programs and policies that promote and reflect source reduction. Local governments as institutional waste generators can put their own house in order (see sidebar). As well, local governments can encourage companies to adopt source reduction as an explicit corporate goal. Local governments could also require companies employing more than a certain number of people in the jurisdiction (such as 250) to submit a source reduction and recycling plan to the local government for review and comment, possibly as part of the business license renewal procedure. Local governments could provide businesses with a list, such as the one that follows, of possible ways businesses can reduce their generation of waste:

- adopt corporate procurement policies that promote source reduction and recycling
- encourage suppliers to incorporate

### Four ways local governments can get their own house in order

A local government could take the following steps, among others, to provide leadership in source reduction by:

- serving as an institutional model for source reduction in the local government's offices, cafeterias, parks, public works yards, and other facilities
- revising the local government's procurement specifications for equipment, vehicles, supplies, furniture, parts and materials to ensure that the local government systematically and visibly buys durable, reusable, recycled and recyclable products
- restricting the use of disposable, non-recyclable products or packaging in local government-sponsored activities
- institutionalizing an office paper reduction program to conserve paper (e.g., minimizing photocopies, using double-sided printing and copying, encouraging the use of recyclable paper, increasing the use of electronic media).

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source reduction and recycling into their internal and external corporate activities, to be consistent with the purchasing company's procurement policies.

- offer rewards to individuals and divisions in the company that develop house source reduction programs
- promote source reduction and recycling in corporate newsletters and other internal media
- track corporate source reduction measures, including annual tonnage avoided, and production and disposal costs saved.

Economic incentives

Economic incentives can serve to modify the waste disposal habits of residents and businesses. A local government could develop a user fee system based on volume (or weight) to encourage residents to reduce, reuse and recycle. This concept is known interchangeably as a "user fee," "generator-pay," "cost of service," "pay-per-container," and "pay-per-bag" system.

Under this rate structure, waste generators pay for their collection service based on the amount of waste they produce. The cost can escalate on a straight-line basis; it can also be raised at an increasing rate. This approach has been followed by local governments as small as Somerville, New Jersey (approximately 4,300 households) and as large as Seattle, Washington (approximately 200,000 households).

User fees can have an immediate and substantial impact on how individuals view their own generation of trash. Responses to increases in waste collection bills tend to be quick. People may discover ways to reuse items and may seek to reduce the amount they discard (and hence reduce their solid waste bill) by altering their purchasing habits. They often become avid recyclers, especially since most properly prepared recyclables tend to be exempt from collection fees.

A user-fee system can be implemented either directly by the local government or indirectly in conjunction with private haulers. Generator-pay approaches include:

- Metered bag or tag. Standardized marked bags or tags are purchased at local retail outlets, or a fixed number are given to residents at regular intervals, with the option to purchase additional bags or tags. The cost of solid waste collection and disposal is included in the price of the bags or tags.

Per-container subscription rate. Generators pay for the number of containers set out, on a straight-line or graduated rate basis. In a graduated rate structure, waste generators pay a higher incremental rate for additional garbage cans. The subscription system requires the hauler to monitor the number and size of bins set out for collection.

- Standardized container rental. Generators rent bins from haulers and pay a rental service fee for the container and hauling service. Fees are based in part on the size of the container and the frequency of collection.

- Container licenses. Generators purchase an annual license for each container. The licensing fee varies with the size of container. Haulers empty only those containers that carry a valid license. Special provisions must be made for bulky items.

- A user fee approach is not without drawbacks, however. The regressivity of typical user-fee rate structures, by which low-income residents and small businesses must allocate a relatively higher percentage of their income for what has been
viewed historically as a public health provision, is seen as a negative, as is the moderate potential for increased illegal dumping of trash. There is also a moderate potential for increased open burning of trash, with negative consequences for air quality.

An alternative economic incentive for waste generators is the reduced rate option. For customers who consistently generate a below-normal amount of solid waste, a lower flat rate is charged than the regular collection fee. In general, customers must request this reduced rate service. The reduced rate option is particularly well received by elderly and single residents.

Specific to the business community, local governments could encourage source reduction by initiating or supporting economic incentives or disincentives to promote commercial-sector source reduction at the state or national level, where such proposals are likely to be more effective than at the local level. These measures can include:

- Subsidies, rebates and credits for manufacturing or purchasing products and packaging that incorporate source reduction principles.
- Investment tax credits and/or sales tax exemptions on manufacturing equipment that enhances source reduction.
- Advanced disposal fees on certain packaging materials at the point of manufacture or sale.
- Waste generation quotas, above which financial penalties are imposed on generators.

Obviously, some segments of industry have begun to alter products and their packaging so that they are more "environmentally friendly." These moves can be attributed in part to changing consumer preferences and to industry's desire to avoid adverse publicity or increased regulation of its products and packaging.

A local government could promote voluntary corporate source reduction initiatives by:

- Informing industry leaders of the local government's source reduction goal and its preeminent position in the hierarchy of solid waste management options.
- Explaining local government expectations of industry leadership in support of source reduction.
- Issuing statements in support of consumer groups that are working to promote changes in product design and choice of feedstock materials and packaging that reduce the generation of waste.
- Encouraging industry efforts to reward employees for useful suggestions that lead to source reduction.
- Providing technical assistance businesses that are developing source reduction programs.
- Supporting standardized labeling (e.g., logos, symbols, wording) for products and packaging that promote source reduction.
- Alerting the business community to potential legislation that could be enacted if voluntary industry measures in support of source reduction are inadequate.

These steps require minimal time and effort, yet can assist in creating a business atmosphere that favors and enables greater waste reduction.

**Regulation**

A local government could consider legislative steps to promote source reduction by residents and businesses. Four examples are presented here:

- **Legislation on product or packaging**: Money Making

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content or availability can be used to alter consumption and production patterns. For example, local governments could restrict the use of disposable, nonrecyclable products or packaging in government-sponsored activities. Proposed bans around the country and elsewhere have addressed such items as nonrefillable or nonrecyclable beverage containers, nonrecyclable packaging, disposable diapers and assorted plastic products.

Some local governments may also seek to ban the sale of certain items within city limits. The efficacy of products bans is a hotly debated issue. Materials bans typically lead to the substitution of one type of material for another, and, as such, generally do not significantly reduce the generation of solid waste. It has been demonstrated, however, that local governments can make important statements to industry and the public simply by considering material bans.

Mandatory product or packaging requirements and restrictions can act as catalysts when the private sector does not or is not expected to respond quickly or sufficiently to market mechanisms. When used selectively over a broad area (such as a state or nation), material bans can increase the reusability and recyclability of products and help to reduce environmental impacts.

As a second option, local ordinances could also be used to restrict access to disposal facilities for certain types of materials, in an effort to promote reuse and recycling. This approach has been taken by numerous local governments and counties, especially regarding yard waste, so that it is composted rather than disposed. For example, at least 10 states have passed legislation that will restrict the flow of yard waste to landfills. While primarily used to stimulate recycling and composting, such bans could also play a part in promoting source reduction.

Ordinances could also be enacted to limit the number of containers or bags (up to a certain size) by generators. Collection crews would be allowed to pick up only a certain maximum number of containers or bags. Legislation of this type might help to encourage source reduction.

Finally, a local government could work with regional and state organizations and governments to lobby for and to coordinate greater product regulation, which could include mandated source reduction in products or packaging, product initiation fees, product bans and others. A local government could support state or federal legislative efforts to regulate certain aspects of manufactured products, including:

- minimum weight or volume per finished good (relative to packaging amount) to ensure that items will be sold in larger sizes to reduce packaging
- maximum weight or volume per finished good (relative to historical product weight or volume) to ensure that items will be made without unnecessary weight or volume, such as automobiles
- required durability guarantees to promote less frequent replacement of products by ensuring that products are covered through longer manufacturers' warranties. (This idea may not always benefit the environment; see the sidebar on durability.)

These mandatory requirements must, however, address potential unintended implications, such as the possible substitution of nonrecyclable materials for potentially recyclable materials in an effort to meet maximum weight requirements. One example of this phenomenon might be the potential substitution of lighter weight, nonrecoverable plastics in automobiles at the expense of heavier, but recoverable and recyclable, metal.

A more flexible approach would be to restrict the use or sale of products or packaging if steps are not taken by the manufacturer or secondary commodity markets to make the recycling of them technically and economically feasible. Hennepin County, Minnesota has taken this approach, where a product's recyclability must be demonstrated by its inclusion in pilot recycling collection programs or the product may face possible restrictions in its use or sale.

**On-site composting**

On-site composting can be defined as the process of managed decomposition of organic materials on one's own premises that results in the creation of a usable soil amendment. This concept is also known as "backyard" composting.

Articles in this magazine and others have shown that yard waste and food wastes can be composted successfully on-site fairly easily with minimal bad

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**Durability is just one criterion**

Source reduction campaigns often suggest that consumers use products until the product's useful life has elapsed, or give them to others to use. However, in some cases, emphasizing only durability may not represent the most environmentally responsible option. For example, improvements in appliances are continually being made to alleviate air pollution, increase energy efficiency, eliminate toxic compounds and improve safety features. Sending an old, usable appliance to the recycling yard and buying a far better replacement may, in the end, be a sound environmental decision.

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odors or disturbances from animals. Together, yard waste and food waste typically constitute one-quarter to one-third of residential solid waste.

On-site composting is the least expensive way of managing yard wastes. It eliminates the public and private costs of collection, transport, tipping fees and processing. Research conducted by the author in Westchester County, New York for Cornell University Cooperative Extension demonstrated that home composting savings could be approximately $35 or more per participating Westchester County household.

By actively managing one's own yard waste, this form of composting may instill in residents and businesses a sense of greater responsibility not only for that waste, but for other materials. Consequently, citizens may develop a greater interest in recycling and other solid waste management issues. One way to stimulate interest in on-site composting is through public education and publicity. Composting can be encouraged on more than a strictly economic basis. The values of exercise, recreation, workmanship, science education and community pride can be identified with on-site composting. A variety of local government actions can be undertaken in backyard composting (see sidebar).

The implementation of volume-based rates for refuse collection would also help to stimulate on-site composting activity. Those who engage in composting at home or business will reduce their disposal costs.

In addition to on-site composting, other yard waste reduction methods, such as leaving cut grass on the lawn, can be effective as well. Hennepin County, Minnesota has established a goal of eliminating 4 percent of its waste stream by encouraging residents to incorporate grass clippings into their lawns rather than removing them for disposal.

Reuse
Reuse means the use, in the same form as it was produced, of a material that

How to help get yard wastes composted at home or business

Local governments can develop comprehensive on-site composting education and promotion programs by:
- developing flyers, brochures and other how-to literature
- establishing demonstration sites, where curious residents and business managers can view different composting methods, bin construction materials and end products
- using mass media, plus billboards, inserts in utility bills, signs and related measures
- supporting a master composter program, in which residents are trained by experts to teach other residents and business managers proper techniques of composting
- distributing compost bins, accompanied by instruction in their use and follow-up efforts.

To minimize duplication of effort, these approaches could be coordinated on a regional basis.
might otherwise be discarded. Reuse can be either direct (such as with used clothing), or indirect (such as with refillable beverage containers). Common reuse techniques include donating used clothing, repairing old appliances, taking part in swap meets or rummage sales, and buying antiques. Like other source reduction strategies, reuse programs can raise interest in recycling and composting.

Local governments could support reuse programs in several ways, including:
- helping nonprofit organizations and others locate material drop-off donation sites, where used clothing, furniture, books, appliances and other items can be collected and later resold or given to appropriate clientele
- endorsing donation programs that assist in meeting people's basic needs
- sponsoring periodic swap meets (such as at a municipal parking lot unused on weekends)
- assembling a directory that lists local shops that purchase or sell used items (including clothing, home furnishings, cars, books, music and other items)
- providing assistance in developing appliance repair programs at local technical or trade schools, sheltered workshops and senior citizen organizations
- providing assistance to nonprofit organizations that are primarily involved in materials reuse.

Great opportunities also exist for the reuse of commercial and industrial materials. Local governments can promote reuse of these materials by:
- supporting nonprofit community groups that reclaim old building materials for use by low income residents
- encouraging local industries to participate in industrial waste exchanges
- adopting a policy of reusing or making available for reuse items for which there are willing recipients.

Hazardous waste reduction
The "safe disposal of hazardous materials" has increasingly become viewed as a contradiction in terms. In response, attention has begun to shift toward reducing the generation of these wastes.

Local governments can promote the reduction of hazardous waste by adopting a public education and publicity campaign that identifies problem substances and their less toxic or nontoxic alternatives. Residents and businesses should be urged to use products that are less toxic or nontoxic, to apply no more than the recommended amount of a toxic substance, and to give away for reuse the remainder of products (such as unused paint) containing toxic substances.

Several publications and educational materials are available that list potentially hazardous substances and their substitutes. One popular form of this type of literature is known as a toxic waste wheel. Publications that provide a guide to dealing with toxics are also available.

Conclusion
Local governments can draw on several approaches to propel source reduction into its proper position as the preferred component of solid waste management. Public education, economic mechanisms and regulations initiated at the local level by individual local governments can be strengthened for maximum effect through joint efforts with other levels of government and through working together with public interest and industry groups.

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