STATE INITIATIVES IN WASTE PREVENTION

A Working Paper Prepared for the California Integrated Waste Management Board

Submitted by:

Gainer & Associates
and
Tellus Institute

October 1992

NOTE: Legislation (SB 63, Strickland, Chapter 21, Statutes of 2009) signed into law by Gov. Arnold Schwarzenegger eliminated the California Integrated Waste Management Board (CIWMB) and its six-member governing board effective Dec. 31, 2009.

CIWMB programs and oversight responsibilities were retained and reorganized effective Jan. 1, 2010, and merged with the beverage container recycling program previously managed by the California Department of Conservation.

The new entity is known as the Department of Resources Recycling and Recovery (CalRecycle).

This document was originally printed in hard-copy format and was declared out of print when all known copies had been distributed. A complete version of the report was located in 2011 and was scanned to a digital format, making it available for downloading.

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Publication # DRRR-2012-020

The CIWMB condensed the original working paper submitted by Gainer & Associates, Tellus Institute, Waste Reduction Research, and RGB Consulting. Gainer & Associates or its subcontractors are not responsible for the information omitted by the CIWMB.

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INTRODUCTION

Californians generate an estimated 45 million tons of garbage per year -- an average 8 lbs of garbage per person per day! Recycling has become popular among local governments, businesses, and citizens as a method to divert valuable materials from landfills. However, recycling does not reduce the amount of waste actually generated. Preventing waste from being created in the first place -- waste prevention -- is the preferred method. After all, waste that is never created does not have to be managed. Furthermore waste prevention conserves resources, reduces waste management costs, reduces pollution, and encourages innovation. No wonder it's the highest priority in California's integrated waste management hierarchy.

Waste prevention, also called source reduction, often encourages innovation and creativity. For instance, many businesses have found that when new ways of reducing waste and using resources more efficiently are identified, improved products or packaging emerge. In this way, waste prevention can help California businesses in competing effectively in national and international markets. Also, many individuals and organizations have found creative ways to reuse items, such as using odds and ends in sculptures and stage sets, and manufacturing used sails into cloth bags and clothing.

WHAT IS WASTE PREVENTION?

Waste Prevention is any action undertaken by an individual or organization to eliminate or reduce the amount or toxicity of materials before they enter the municipal solid waste stream. This action is intended to conserve resources, promote efficiency, and reduce pollution.

Note: Some states and groups use the terms source reduction and waste reduction instead of waste prevention. When describing a particular program, this document uses the program's original term.

Although waste prevention offers great potential to reduce waste, it is a relatively underdeveloped, especially when compared to traditional waste management practices that rely on managing discards, including recycling. This is not surprising because recycling offers a relatively quick and proven approach of diverting significant amounts of waste from landfills.

The challenge the California Integrated Waste Management Board (CIWMB) faces is to increase people's understanding of waste prevention and facilitate the implementation of waste prevention activities throughout the public and private sectors. To develop strategies to promote waste prevention, the CIWMB initiated a contract with Gainer & Associates and their subcontractors to assist in the process.

Gainer & Associates prepared a comprehensive summary of waste prevention programs that the CIWMB could consider for its Statewide Waste Prevention Plan. The information presented is based on literature reviews and program surveys of existing policies being implemented by other states, local governments, and businesses. This information may also be helpful to local jurisdictions and others interested in learning more about waste prevention activities and programs.

CHAPTER 1 STATE ROLES IN WASTE PREVENTION FOR STATE AGENCIES AND INSTITUTIONS

INTRODUCTION

State governments can take an active role in developing waste prevention programs within their agencies. Such agencies are the one area in which state governments can directly implement waste prevention programs, rather than facilitating or mandating their implementation by other units of government, households, or private sector entities. Part I of this chapter covers state legislation to initiate waste prevention programs in state agencies. Part II covers state programs to assist agencies in realizing waste prevention goals.

Several state governments have undertaken efforts to encourage material conservation, or waste prevention, by their own agencies. State legislation has been enacted and some technical assistance programs and documents have been developed. However, no state government has undertaken a detailed quantification of these waste prevention efforts. A notable exception is the Minnesota Office of Waste Management. They have conducted several case studies of programs in county governments and private sector facilities in the state. (Appendix D contains copies of these studies.) They reveal the cost effectiveness of incorporating source reduction in standard operating and procurement procedures of agencies, firms, and institutions.

One case study was conducted for county government facilities in Itasca County, MN (population 42,000). By implementing source reduction programs, the county offices reduced their waste stream by 10% and saved $4,780 per year, not including avoided disposal fees. Though no similar studies have been conducted on the state level, the Itasca case is indicative of the opportunities for reducing waste while saving money in government.

Itasca County realized its savings by increasing the efficiency of material utilization. Its achievements resulted from a dedicated effort by county employees to reduce waste. Workshops were provided by the State, and county employees were trained to identify opportunities for source reduction in standard operating procedures.

PART I STATE LEGISLATION

Legislation and regulations can be enacted which require that state agencies develop waste prevention plans and procure materials that eliminate or reduce the quantity and toxicity of waste generated. Such measures usually require that agencies evaluate waste generation and composition, and develop strategies for

reducing generation rates by altering their procurement practices and operations. Programs developed by state agencies serve as an example to local governments and private sector waste generators.

It is important to note that legislative mandates for state agency planning and procurement tend to work most effectively in conjunction with state level technical assistance programs, as described in Part II of this chapter.

Legislative Examples

Connecticut Division of Administrative Services (DAS): Connecticut's DAS developed a state *"Plan to Eliminate Disposable and Single Use Products in State Government."* This plan resulted from legislation requiring the DAS to create and implement purchasing guidelines to eliminate procurement of disposables by the state (Public Act 89-385). Products targeted for reduction by the DAS are identified in the table on the next page.

The DAS reports that start-up has been slower than expected, due to the initial high cost of some reusable materials such as tableware and diapers, and the cost of creating an infrastructure for cleaning reusable materials.[1] In addition, the state's large budget deficit has further discouraged purchasers from buying more expensive durable and reusable products.

Contact: Peter Connoly, Connecticut Department of Administrative Services, 460 Silver Street, Middleton, Connecticut 06457, (203) 638-3267.

Minnesota Statutes, Chapter 593: This regulation requires that state purchases of commodities and services shall apply and promote preferred waste management guidelines, with special emphasis on reducing the quantity and toxicity of materials in waste. All bid specifications must consider product durability and reusability, and the feasibility of recycling and marketing them through the state's resource recovery programs. In response to this mandate, the Department of Administration has established "Priorities for Environmental Management" to avoid and minimize waste and pollution during the acquisition, use, maintenance, and discard of goods. All state divisions are required to integrate these priorities into all their programs, and must designate a representative to serve on the Department of Administration's Environmental Coordination Committee (See the section below and Appendix D for more information on this program).

Contact: Lynne Markus, Department of Administration, Resource Recovery Office, 112 Administration Building, 50 Sherburne Avenue, St. Paul, Minnesota 55155, (612) 296-9084.

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[1] Fishbein and Gelb. 1992. "Making Less Garbage: A Planning Guide for Communities." Inform, New York, New York.

Products Targeted for Reduction in Mandatory Procurement Requirements-Connecticut[2]

Products Targeted for Reduction	Alternatives
Disposable ball point pens	Refillable pen and ink supply
Disposable typewriter and printer ribbons	Multistrike ribbons with ink impregnated nylon
Laser printer toner	Recharge toner cartridges
Single use inter-departmental envelopes	Multiple use interdepartmental envelopes
Film window envelopes	Window envelopes without film
Disposable wood pencils	Mechanical, refillable pencils
Disposable razors	Reusable handles with disposable blade cartridges
Detergents and cleaners	Larger bulk containers, with agency personnel responsible for dispensing in smaller reusable spray bottles
Disposable wipers	Recycled cloth rags
Disposable diapers	Reusable cloth diapers
Disposable aprons, hats, tablecloths	Reusable, washable, substitutes
Disposable, single use food packaging containers	Bulk packages with agencies responsible for repacking into reusable dispensers
Disposable dishware	Reusable dishware
Single use tires	Contracts for retreading
Motor oil	Re-refined oil

[2] Based on the Connecticut Department of Administrative Service's, "Plan To Eliminate Disposable and Single Use Products in State Government," Hartford, Connecticut, 1990.

PART II STATE ASSISTANCE PROGRAMS

As discussed above, some states have passed legislation requiring that state agencies develop source reduction planning and procurement activities. The most effective legislation of this kind is accompanied by technical assistance programs to provide guidance to agencies in developing source reduction plans.

Program Examples

Minnesota Department of Administration, Materials Management Division, Resource Recovery Office: All state divisions are required to integrate "Priorities for Environmental Management" to avoid and minimize waste and pollution during the acquisition, use, maintenance, and discard of goods. State agencies must designate a representative to serve on the Department of Administration's Environmental Coordination Committee. This committee is facilitated by the Resource Recovery Office (RRO), which has four full time employees. Their sole responsibility is to ensure implementation of the Priorities. This includes providing relevant technical assistance to all state agencies. The Priorities stress that resource conservation options, such as reuse and waste reduction, should be employed first, before resource discard options such as recycling and off-site composting.

Contact: Lynne Markus, Department of Administration, Resource Recovery Office, 112 Administration Building, 50 Sherburne Avenue, St. Paul, Minnesota 55155, (612) 296-9084.

Rhode Island Solid Waste Management Corporation (RISWMC): The RISWMC has created a technical assistance guide for state agencies entitled "*Report on Source Reduction in State Agencies*" (1991). This report details benefits associated with specific source reduction strategies that can be employed by State agencies. Its focus is on changing procurement practices, utilizing surplus property systems, and reusing and repairing large items rather than discarding them after they wear out. Because state agencies in Rhode Island are not required by law to evaluate source reduction in purchasing practices, state agencies have made only limited usage of the document.

Contact: Erica Guttman, Rhode Island Solid Waste Management Corporation, 260 West Exchange Street, Providence, Rhode Island, (401) 831-4440.

INFORM: This non-profit organization has recently completed a report entitled "*Making Less Garbage: A Planning Guide for Municipalities.*"[3] Their report contains the following recommendations pertaining to source reduction procurement policies.

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[3] Fishbein and Gelb. 1992. Ibid.

- Establish a price preference for reusables, refillables, durables with longer warranties, and equipment that reduces waste (i.e, double sided copiers).
- Require vendors and shippers to take back containers and packaging in order to give them an incentive to use reusable distribution packages.
- Require suppliers to eliminate excess packaging.
- Require government agencies to ship materials in reusable distribution packages.
- Establish guidelines requiring duplex copying of all government documents.
- Purchase duplex laser printer and copiers, computer software including electronic mail and faxing devices that allow for elimination of paper waste, narrow lined notepads, reusable coffee filters, refillable tape dispensers, and long lasting light bulbs.

CHAPTER 2 NON-SECTOR SPECIFIC WASTE PREVENTION PROGRAMS AND LEGISLATION

INTRODUCTION

The structure of this report implies that the state should assume a sector-based strategy in developing its waste prevention programs. However, some state activities to promote waste prevention are not "sector specific." These include programs and legislation which can be applied to or affect both the private sector and local government levels simultaneously. Programs discussed in Part I include state grants, financial assistance, and information coordination programs. This is followed by a description of specific legislation in Part II.

PART I NON-SECTOR SPECIFIC STATE PROGRAMS

Programs such as grants and information coordination may not be targeted at any specific sector. Rather, they represent tools that the state can employ for encouraging waste prevention by all sectors.

A. Grants and Financial Incentives

Source reduction programs do not generate direct revenue, rather benefits are usually realized in the form of resource and materials conservation and avoided waste management costs. Though many states have historically provided grant funds for the development and implementation of integrated waste management plans, these funds are not usually allocated for waste prevention programs. However, state agencies can serve as an important catalyst for the development and application of waste prevention programs at local public and private levels by providing direct incentives for them.

State level grant programs can fund source reduction feasibility assessment and implementation efforts. State grants and financial assistance for development of source reduction initiatives can serve two important functions:

- Provide seed money for program design and implementation; and
- Develop transferable information about program operations and performance.

Program Examples

Michigan Department of Natural Resources: In 1989, Michigan voters approved "Protecting Michigan's Future Bond: Solid Waste Alternatives Program Projects,"

for grant applications through Fiscal Year 1993. One of the grant categories established under this program includes the Solid Waste Alternatives Program (SWAP). SWAP provides matching funds to public and private sector entities for approved research and demonstration projects related to alternative solid waste management. There is a rigorous application process for the annual funding cycle, and grant proposals must quantify, or provide detailed calculations to estimate, waste reduced in order to receive funding.

There is no budget limit in the waste reduction category during a given year of this program. SWAP staff review applications, followed by the Solid Waste Advisory Board and the Natural Resources Commission, and then funding recommendations are made to the legislature.

SWAP has approved almost $97 million in grants and loans for 281 projects over the past four years. Seven source reduction projects have received SWAP funds since the program started, although grant awards have declined over time.

Examples of source reduction projects funded by SWAP are provided below.

- Research methods for reducing the amount of foundry sands that are landfilled, through reclaiming and reuse (Michigan Technical University, $250,000).
- Purchase of equipment to increase capacity and provide diaper service to more households (Tiny Tot Diaper Service, $63,800).
- Development of a set of industrial waste reduction case studies to promote technology transfers among industries (University of Michigan, $50,000).
- Research into industrial waste streams to identify those streams having the greatest potential for waste reduction and developing reduction methodologies (WW Engineering & Science, $90,000).
- Development of quantitative information and implementation tools to support and advance the state's business-oriented waste reduction efforts (Harwood Group, $135,000).
- Quantification and dissemination of results of intensive home source reduction activities of 200 participating families (Michigan State University, $20,000).

Contact: Sharon Edgar, Michigan Department of Natural Resources, Waste Management Division, P.O. Box 30241, Lansing, Michigan 48909, (517) 373-4749.

Minnesota Office of Waste Management (OWM): The OWM has offered over $800,000 in source reduction-specific grant funds over the 1991-1992 period.

Approximately 23 public and private sector sources have received matching grants of up to $50,000 for source reduction feasibility studies and implementation. The program has been extremely successful in fostering the development and implementation of transferable source reduction programs at the local and private levels. The following pages list grants issued by the OWM in the past 2 years.[4] By issuing small matching grants with a $50,000 cap, OWM has been able to fund more source reduction projects than the other program references described herein.

Contact: Tom Osdoba, Minnesota Office of Waste Management, 1350 Energy Lane, St. Paul, Minnesota 55108, (612) 649-5750.

New York State Energy Research and Development Authority (NYSERDA): Issued almost $208,000 in source reduction specific grants in the 1991-1992 period. Most of NYSERDA's grants are for implementation and demonstration projects. Over the past year the agency has become much more interested in promoting private and public source reduction projects. Another three grant proposals totalling over $800,000 are under close consideration and may be signed within the next six months. These proposals are identified below.

- Ulster County Resource Recovery Agency--Waste Reduction Through Consumer Education: The goal of this project is to develop, demonstrate and evaluate consumer education strategies for waste reduction. The total amount requested is $405,319. Project objectives are:

  (1) To develop and demonstrate 5 different consumer education strategies;
  (2) To measure the amount of waste reduced through the impact of educational efforts on consumers' supermarket purchases;
  (3) To analyze the environmental and energy impacts of these changes in purchasing behavior;
  (4) To prepare model strategies that municipalities can use in developing waste reduction programs;
  (5) To disseminate provisions and recommendations throughout New York State.

- Tompkins County, New York--Commercial Source Reduction Program: The goal of this program is to identify and reduce the waste streams of 10% of the county's businesses by auditing 150 local businesses. The objectives are to demonstrate and evaluate innovative programs and technologies for reducing the quantities and problem components of residential, commercial, and institutional waste. Total amount requested: $226,525.

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[4] Based on the Minnesota Office of Solid Waste Management's, "1992 Solid Waste Policy Report," Saint Paul, Minnesota.

Minnesota Office of Waste Management
Source Reduction Financial Assistance Program
1991 Grant Awards

APPLICANT	GRANT	PROJECT
Hennepin County	$13,777	To develop source reduction model facilities that would review and modify procurement practices, improve life and longevity of equipment and supplies, reduce waste, and conserve energy.
Rice County	$32,033	To develop and implement source reduction programs within the City of Northfield and Northfield Public School District; targeting attitudes and actions within schools and the business community.
Winona County	$38,760	To develop and implement a clearinghouse for information and promotion of exchange; Commercial Materials Exchange Project; feasibility study to expand project over nine-county region in Southeast Minnesota.
East Central Solid Waste Commission	$50,000	To develop an audit handbook, complete audits to identify source reduction methods and develop waste reduction practices.
City of Minneapolis	$50,000	To develop purchasing incentives for departments to utilize supplies that minimize waste generation.
University of Minnesota	$38,972	To develop a system to recover and reuse materials within the University; develop a source reduction manual; identify and implement source reduction potential for three areas of institutional operations; develop institutional framework for on-going implementation of waste reduction activities.
Brainard Public School District	$ 4,615	To determine the feasibility of source reduction potential for 7 areas of institutional operations.
Eveleth Public School District	$ 5,816	To convert food service system to use durable supplies.
Delkor Systems, Inc.	$35,000	To demonstrate the feasibility and source reduction potential of reusable alternative to corrugated shipping containers.
Eco Solutions	$10,000	To implement pilot home waste survey; source reduction audit; resident education; specific household recommendations; and evaluation and publicity.
Evergreen Solutions	$26,120	To develop packaging alternative for styrofoam peanuts: performance testing and feasibility.
Minnesota Hospital Assoc.	$36,925	To determine and promote technical and economic source reduction alternatives available to hospitals.
The Minnesota Project	$24,500	To implement the Source Reduction Leadership Project: 1. Development of emerging leaders in the waste reduction field, 2. Development of specific waste reduction projects.
Minnesota Public Interest Research Group	$38,805	To develop research and feasibility studies to assist in completing and evaluating the Business Allied to Recycle through Exchange and Reuse (Barter) Network.
Total Grants	$403,323	

Minnesota Office of Waste Management
Source Reduction Financial Assistance Program
1992 Grant Awards

APPLICANT	GRANT	TOTAL COST	PROJECT
Public Institute Grants			
Chisago County	$39,582	$52,776	To implement pilot projects to replace single use, half pint milk containers in two school facilities: 1) utilize refillable half pint containers; 2) install bulk milk dispensing system.
Dakota County	$29,756	$39,681	To implement source reduction practices in up to twelve selected public facilities and private businesses.
Houston County	$50,000	$75,236	To implement a textile reuse project in partnership with an organization for developmentally disabled adults.
City of Fergus Falls	$50,000	$87,401	To implement a repair and reuse project for large and small household appliances, durable goods and textiles in partnership with an organization for developmentally disabled adults.
Feasibility Study Grants			
Kaltec of Minnesota	$50,000	$101,290	To determine the feasibility of a bottle inspection system to increase the use of refillable milk bottles.
Minnesota Public Interest Research Group	$49,375	$98,750	To increase exchange and reuse of packaging materials with focus on large generators; and to determine the economic feasibility of financing these services through service fees.
Schroeder Milk Company	$50,000	$182,760	To determine the increased market potential for refillable containers using a new type of refillable half gallon milk container.
Implementation Loans			
Barrel O' Fun	$ 40,545	$81,090	To implement a bulk system for receiving factory feed stocks, reducing or eliminating the disposal of 50 pound vapor lined bags.
Pizza Pub	$ 50,000	$181,180	To manufacture and utilize reusable pizza boxes within operations, and to explore marketing boxes to other pizza delivery operations.
TOTAL GRANTS	$409,258	$900,792	

- Orange County New York--Backyard Composting Waste Reduction Demonstration and Evaluation: The goal of this project is to promote waste prevention through backyard composting. Forty to sixty volunteers will participate in the program, weighing and keeping records of at least four categories of waste in addition to the compost. An additional 100-150 volunteers will weigh only compost. Waste reduction rates, and economic and energy benefits associated with backyard composting, will be identified. Total amount requested: $207,853.

Contact: Barry Liebowitz, New York State Energy Research and Development Authority, Albany, New York 12223, (518) 465-6351.

B. Information Coordination and Dissemination

By providing information coordination and dissemination, state agencies can contribute to the success of assistance programs (see Chapters 4 and 5). States can also compile and catalogue waste prevention information in a centralized clearinghouse. This information can assist in the development of state, local, and private sector source reduction programs. States can also convene task forces to foster information coordination, or to supplement the activities of an assistance program.

Program Examples

Minnesota Office of Solid Waste Management: The OWM has developed a Waste Education Clearinghouse of resources and audio-visual materials available for purchase, review, or borrowing. This Clearinghouse compiles information on recycling and other conventional waste management activities, in addition to source reduction materials. Source reduction outreach information and documented case studies developed by the OWM is disseminated through the Clearinghouse. The activities of the Clearinghouse are guided by the Waste Education Coalition, a group of volunteers appointed by the director of the OWM that meets bimonthly to address interagency waste education issues within the state.

The OWM also publishes a bimonthly report entitled "*The Resource*," which focuses on pollution prevention and source reduction activities occurring at state, local, and private levels. Finally, the OWM sponsors the *Minnesota Source Reduction Network*, which consists of a loose coalition of public and private officials who meet bimonthly to discuss source reduction efforts, projects, ideas, and plans.

Contact: Waste Education Clearinghouse, Minnesota Office of Waste Management, 1350 Energy Lane, St. Paul, Minnesota 55108, (612) 649-5750.

Rhode Island Solid Waste Management Corporation (RISWMC): The RISWMC operates a Source Reduction Task Force composed of representatives from commerce and industry, environmental advocacy groups, government agencies, the state legislature, and academia. According to the RISWMC, the Task Force has the following functions:

- Provides a forum in which representatives from diverse groups can gather in a non-threatening arena to build consensus on source reduction issues;
- Reviews the progress of the State's source reduction activities;
- Makes policy recommendations and provides ideas on program elements for the state's source reduction program;
- Serves as a sounding board in which new source reduction ideas can be evaluated by applying diverse perspectives and expertise to specific issues;
- Introduces and supports legislation as a united body;
- Assists in budget development and makes recommendations for outside sources of funding; and,
- Promotes public outreach campaigns, and holds media events.

The RISWMC has also developed general outreach materials such as a poster which provides source reduction tips for residents on one side, and commercial/industrial sources on the other. These materials are disseminated to interested parties by the RISWMC at no cost.

Contact: Erica Guttman, Rhode Island Solid Waste Management Corporation, 260 West Exchange Street, Providence, Rhode Island 02903, (401) 831-4440.

PART II NON-SECTOR SPECIFIC LEGISLATION

Non-sector specific legislation may have an impact on waste generation rates in both the private sector and local government agencies. Below we discuss one type of such legislation which can be employed to reduce waste. This one example is by no means exhaustive of all the initiatives that could be employed. Other relevant legislation is described in Chapters 2, 4 and 5.

Disposal Bans

Bans on difficult to dispose of materials and products have become increasingly popular as states have begun to implement their integrated waste management

plans. Though bans can increase awareness about the problems associated with disposal, they do not assure waste prevention. Bans are most effectively carried out in conjunction with extensive education and outreach programs to assist generators in identifying viable alternatives to the use and disposal of banned materials or products (for more information on bans, see Appendix B, "Local Level Bans").

The table below provides a state by state listing of materials banned from disposal.

State Disposal Bans

State	Yard Waste	Lead-Acid Batteries	Oil	Tires	Appliances	Other
Arkansas	x	x		x		
California		x		x[5]		
Connecticut		x	x			Nickel cadmium batteries
D.C.			x			
Florida	x	x	x	x	x	Construction and demolition debris
Georgia		x				
Hawaii		x				
Idaho				x		
Illinois	x	x		x		
Iowa	x	x	x	x		Non degradable grocery bags, bottle bill containers
Kansas		x		x		
Kentucky		x				
Louisiana		x				
Maine		x				
Massachusetts	x	x	x	x	x	Recyclable metal, glass, plastic containers
Michigan	x	x	x			

[5] Tires are not explicitly banned from California landfills, but legislation exists discouraging landfilling and encouraging other uses. See Legislative Analysis.

State Disposal Bans						
State	Yard Waste	Lead-Acid Batteries	Oil	Tires	Appliances	Other
Minnesota	x	x	x	x	x	Dry cell batteries containing heavy metals
Missouri	x	x	x	x	x	
New Hampshire		x				
New Jersey	x					
New York		x				
North Carolina	x	x	x	x	x	
Ohio	x	x		x		
Oklahoma				x		
Oregon		x		x		Source Separated Recyclables
Pennsylvania	x	x				
Rhode Island						Recyclables
Tennessee		x	x	x		
Texas	x	x				
Vermont		x	x	x	x	
Virginia		x				
Washington		x				
Wisconsin	x	x	x	x	x	Aluminum, glass, steel containers, recyclable paper
Wyoming	x	x				

Source: Inform. Making Less Garbage: A Planning Guide For Communities. New York, New York, 1992.

CHAPTER 3 STATE ROLES IN WASTE PREVENTION FOR THE PRIVATE SECTOR

INTRODUCTION

This chapter outlines state government programs targeting the private sector and their operating history. Two broad types of state-led efforts are identified: assistance and legislation. Business assistance programs, including business-to-business assistance programs, university-sponsored technical assistance programs, and state-sponsored waste exchange programs are discussed in Part I of this chapter. Programs involving legislation, such as packaging reductions, are discussed in Part II.

Prior to reading this Chapter it may be useful to review Appendix A, which discusses several prominent private sector programs. These case studies illustrate that many private companies have implemented waste prevention programs which have resulted in significant material and waste disposal cost reductions. Three general strategies have been employed by the private sector to reduce waste. These include:

1) Implementing waste prevention programs in general operations;

2) Incorporating waste prevention in the design of products and packages; and,

3) Participating in cooperative efforts with state and local governments.

The first strategy usually results in curbing the quantity and toxicity of waste generated by the private sector source. The second strategy results in waste reduction at the point of consumption or utilization (this often overlaps with the first category). For example, a company which designs and utilizes reusable distribution packaging would realize source reduction in both general operations and in the design of a package. The third strategy has no direct impact on individual companies' waste generation rates, but can result in the creation of consistent, mutually beneficial information exchange with state and local governments.

In Part I (Assistance programs) and Part II (Legislation) we will identify the main focus, whether on general operations, product design, or cooperative efforts, of each of these state initiatives. In addition to the programs described below, states can use grants/financial assistance and information coordination programs to assist the private sector. Grant programs are described in Chapter 2.

Part I STATE PROGRAMS FOR THE PRIVATE SECTOR

This section provides information on state programs developed to assist private companies in developing, implementing, evaluating, or understanding waste prevention programs. Three broad policies have been pursued by state governments: technical assistance programs, waste prevention award programs, and commercial waste exchange programs.

A. Commercial and Industrial Technical Assistance Programs

Commercial and industrial technical assistance programs require detailed knowledge of a wide variety of specific industrial and commercial processes. State technical assistance to commercial and industrial sources may include:

- Developing standardized guidelines for evaluating and reducing waste generation patterns in specific industries;
- Providing human resources to conduct audits and recommend changes in procurement and operations;
- Assisting in the development of design standards that reduce the quantity and toxicity of materials required to manufacture and distribute products and materials; and,
- Conducting and disseminating guidance documents and case studies which reveal benefits associated with waste prevention.

Program Examples

Iowa Waste Reduction Center: The Iowa Waste Reduction Center, housed at the University of Northern Iowa, provides free non-regulatory technical assistance to Iowa businesses and industries. These services include assistance in reducing solid and hazardous waste, water effluents, and air emissions. Pertaining to source reduction, the Center provides on-site review of waste management practices, and identifies methods for reducing and reusing waste. The Center operates a student internship program, which reduces program costs. No information was available on the quantity of waste reduced, but the Center claims a combined reduction and recycling rate of 54,000 tons in the 1990-1991 period.

The Center has 10 staff members, with 4 dedicated to on-site reviews. This past year the Center received $525,000 in state funds from a $0.20 per ton tax on solid waste disposal, $300,000 from the EPA for pollution prevention projects and $109,000 from the Northwest Area foundation for rural waste management solutions.

Contact: John Konefes, Iowa Waste Reduction Center, University of Northern Iowa, Cedar Falls, Iowa, (319) 273-2079.

Michigan Office of Waste Reduction Services (OWRS): The OWRS provides technical assistance to businesses under a partnership between the Departments of Commerce and Natural Resources. The program's goal is economic development and environmental protection in the context of the state's waste reduction goals. The OWRS does not focus specifically on source reduction services, but provides source reduction help as part of its general assistance to the commercial/industrial sector throughout Michigan. Technical assistance is provided through telephone consultations and on-site visits. Other services provided by the OWRS include:

- Providing waste reduction checklists and other publications to help firms get started in identifying opportunities for source reduction;
- Analyzing waste reduction potential and techniques by industry sectors;
- Auditing and analyzing waste stream data;
- Sponsoring workshops and other educational seminars; and,
- Administering an intern program through which specially trained university students assist companies in waste reduction and recycling services.

Program staff consists of three (3) engineers, a hazardous waste specialist, a hospital waste specialist, one person to coordinate a waste reduction program with three major automobile manufacturers, and 4-5 support staff. Like the Iowa program, this program uses university students as interns.

Contact: Lucy Doroshko, Office of Waste Reduction Services, P.O. Box 30004, Lansing, Michigan, 48909, (617) 335-1178.

Minnesota Office of Waste Management (OWM): The OWM has targeted specific business sectors and has developed transferable information and guidance documents from these sectors. Through partnerships with trade associations, the OWM has conducted case studies and provided these materials to association members. Industrial and commercial case studies have been developed for a newspaper publisher, a local conference center, and a hospital. The results of these studies are provided in Appendix A. In addition, OWM provides staff and specific guidance to industries requesting information. Finally, a video targeted at the commercial sector has been developed, entitled: "How to Implement a Commercial Source Reduction Program." The OWM is presently developing an accompanying guide for private sector sources which will be distributed with the video.

Contact: Kenneth Brown, Office of Waste Management, 1350 Energy Lane, St. Paul Minnesota, 55108, (612) 649-5750.

United States Environmental Protection Agency: The U.S. EPA is in the process of developing "A Business Guide for Reducing Municipal Solid Waste," which is due for release in January of 1993.

Contact: Judy Taylor, U.S. Environmental Protection Agency, 401 M Street, SW (OS-301), Washington, D.C., 20460, (202) 260-7452.

WasteCap: WasteCap is a public/private tri-state cooperative encompassing the states of Maine, New Hampshire and Vermont. The program is administered by the State of Maine Waste Management Agency, the New Hampshire Business Association, and Vermont WasteCap (also part of a state business association). The project was initially funded with a $90,000 grant from the EPA. In addition, private and public sources in each of the three states provided matching funds. The goal of the program is to enlist volunteers from industries to provide free solid waste consulting services to industries seeking technical assistance related to source reduction and recycling. Over 60 volunteers have been enlisted in the program to date. Industry-specific training sessions are provided for all interested volunteers in the tri-state region. Three recent training sessions focused on waste reduction in food services, hospitals/nursing homes/health care, and printers. General training workshops are provided for all volunteers, focusing on source reduction, waste assessment, and general protocol. Volunteers provide site visits, general waste audits, and a written report of alternative strategies for reducing the waste stream. The original focus of the program was on recycling, but the thrust is presently shifting to source reduction, as industries have become more sophisticated in their solid waste activities.

Contact: Connie Leach, Vermont WasteCap, P.O. Box 630, Montpelier, Vermont 05601, (802) 223-3441.

B. Waste Prevention Award Programs

State Award programs can be initiated to promote and encourage waste prevention activities in the private sector. If award programs are well publicized, they serve the purpose of:

- Providing manufacturers with an incentive to decrease wasteful products and processes; and,

- Increasing general awareness about waste prevention in product and package design.

Program Examples

Iowa Governor's Waste Reduction Award: This program was developed in 1989 and is sponsored by the Iowa Safety Council, Iowa Association of Business and Industry, Iowa Department of Natural Resources, and the Iowa Waste Reduction Center. Projects are awarded based on demonstrated environmental, economic and safety benefits, transferability and innovation. Companies with the best projects receive the award and accompanying statewide recognition for their projects.

Contact: John Konefes, Iowa Waste Reduction Center, University of Northern Iowa, Cedar Falls, Iowa, (319) 273-2079.

Minnesota Office of Waste Management: No source reduction award programs operated at the state level were identified, however Minnesota issues awards to recognize businesses that are innovative leaders in toxic pollution prevention. According to the OWM, this program has proven effective in raising public awareness and fostering cooperative partnerships between the OWM's technical assistance program and the business community. In addition, the OWM is proposing to develop a source reduction specific awards program.

Contact: Tom Osdoba, Office of Waste Management, 1350 Energy Lane, St. Paul Minnesota, 55108, (612) 649-5750.

World Wildlife Fund (WWF): In its recent document entitled *"Getting at the Source: Selected Strategies to Encourage Source Reduction,"*[6] the WWF proposes the development of a national awards program and details how such a program could be implemented at the federal level. The WWF recommends:

1) Encouraging diverse participation by business, public interest and educational institutions, and state and local governments;

2) Recognizing specific categories of achievement pertaining to development, implementation, and outstanding contributions by participating groups;

3) Using several different criteria including environmental values, innovativeness and transferability, economic benefits, and commitment to environmental protection;

4) Making the program highly visible by launching aggressive public relations campaigns, selecting prestigious individuals to serve on the judging panel, and having high ranking officials present the awards at a special ceremony; and,

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[6] World Wildlife Fund. 1991. Getting at the Source: Strategies for Reducing Municipal Solid Waste. Washington, D.C.

5) Administering the program efficiently by charging nominal fees to private sector applicants.

Contact: WWF Publications, P.O. Box 4866, Hampden Post Office, Baltimore, MD 21221, (301) 338-6951.

C. Commercial Waste Exchange Networks

Waste exchange programs match generators of reusable materials with users of such materials. At the state level, waste exchanges are often operated using a combination of written outreach materials and computer databases. In many parts of the country, statewide waste exchanges are operated by private, non-profit organizations, or public advocacy groups funded by state grants. The Environmental Protection Agency is funding the development of a federal computerized waste exchange bulletin board system, called the National Materials Exchange Network, that can be used from anywhere in the United States. There are presently 15 known state-level waste exchanges in addition to those described below.[7]

Program Examples

Iowa Waste Reduction Center: Provides free waste exchange services through a quarterly newsletter called the *"Closed Loop,"* and a program called the By-product and Waste Search Service (BAWSS). BAWSS staff list materials in the closed loop and the National Materials Exchange Network. Negotiations and transfers are carried out by the companies using the network. Materials transferred include: foam packing peanuts, refrigerant, polyester batting, wood pallets, scrap metals, plastic regrind, chromic acid, empty drums, hog hair, and lime. The BAWSS network is operated through seven separate offices located in universities throughout the state and coordinated by the Iowa Waste Reduction Center at the University of Northern Iowa.

Contact: John Konefes, Iowa Waste Reduction Center, University of Northern Iowa, Cedar Falls, Iowa, (319) 273-2079.

Minnesota Public Interest Research Group BARTER Program: The OWM provides partial funding and assistance to the Minnesota Public Interest Research Group to operate this program, which presently costs about $98,750 annually to operate. BARTER provides an information clearinghouse for discarded materials that still have reuse value. The project's first exchange catalogue was recently published and included over 200 business listings. Negotiations and transfers are carried out by the companies using the network. Each issue of the catalogue contains general

[7] According to the Northeast Industrial Exchange's "*Quarterly Report*," Syracuse, New York, Spring 1992.

information about waste reduction services provided by the OWM, successful case studies citing successes achieved through the BARTER program, and a list of OWM case studies and technical assistance materials available.

Contact: B.A.R.T.E.R., Minnesota Public Interest Research Group, 2512 Delaware Street SE, Minneapolis, MN 55414, (612) 627-6811.

Northeast Industrial Waste Exchange (NIWE): The NIWE is a non-profit corporation located in New York which provides waste exchange clearinghouse services for companies in the northeast. The NIWE provides a quarterly catalogue and an on-line listings catalog. Companies in states providing grant funding to the NIWE (Delaware, Maryland, New Hampshire, Ohio, Pennsylvania, and Rhode Island) can place yearly listings in the catalog for a $75 fee, all other companies are charged a $150 fee for placing annual listings. Negotiations and transfers are carried out by the companies using the network. Subscription fees for companies outside sponsor states are $30 per year. The NIWE also provides advertising services to various companies for a fee.

Contact: Northeast Industrial Waste Exchange, 90 Presidential Plaza, Suite 122, Syracuse, New York 13202, (315) 422-6572.

D. Financial Incentives to Source Reduction Businesses

Financial incentives enacted by other states generally have been part of larger grant programs. Therefore, these programs have been described in Chapter 2, Non-Sector Specific Source Reduction Programs and Legislation. However, the State of California has enacted a number of programs which provide financial incentives for recycling and transformation. These programs include:

- Recycling Manufacturing Equipment Tax Credits
- Recycling Market Development Zone Revolving Loan Fund
- Sales and Use Tax Incentives for the Transformation of Waste Materials

Each of these programs could be adapted or similar programs could be enacted to encourage private sector waste prevention efforts.

Program Examples

Recycling Manufacturing Equipment Tax Credits[8]: Businesses are allowed to claim a credit on their state income taxes of up to 40% of the investment on qualified recycling equipment, not to exceed $250,000. Qualified equipment must be purchased between January 1, 1989 and December 31, 1993, must be used to

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[8] California Revenue and Taxation Code, Personal Income Tax Law - § 17052.14 (Added by SB 432 in 1989), Bank and Corporation Tax Law - § 23612 (Amended by AB 1308 in 1989)

produce finished products with no less than fifty percent secondary material, and ten percent of the fifty must be post-consumer material. Equipment used to produce component parts made from 100% recycled and 80% post-consumer materials is also eligible for the tax credit.

No similar tax credits or incentives exist for waste preventing activities, such as for manufacturers who reduce the use of materials in their product, replace disposable materials with reusable materials or purchase equipment necessary to fabricate/manufacture source reduced containers, etc.

Recycling Market Development Zone Revolving Loan Fund[9]: This section of the code establishes a revolving loan fund to support manufacturers using postconsumer or secondary materials as feedstock. Up to $1 million dollars in low interest loans are available to local agencies and businesses for financing publicly-owned infrastructure and capital improvements in designated Recycling Market Development Zones. The CIWMB designated 12 such zones in July 1992, and will designate approximately 8 additional zones annually. Zone designations last for 10 years, and the program sunsets in 1998. Within the Zones, these low-interest loans are not currently available to businesses which cause a net reduction in the generation of solid waste. Furthermore, the State has no loan or grant programs devoted to the reduction of non-hazardous solid waste.

Sales and Use Tax Incentives for the Transformation of Waste Materials[10]: This section of the code exempts from sales and use taxes the gross receipts from the sale of and the storage, use or other consumption of byproducts from agricultural and forest products operations, municipal refuse or manufacturing if they are used as a fuel source to replace oil, coal and/or gas.

Again, these regulations have no impact on waste prevention. They are important to note, however, because transformation, by statutory definition, is a low priority. And yet, even transformation has tax incentive rewards associated with it. Waste prevention, on the other hand, which is by statute "the first order of priority", has no such incentives or rewards.

PART II STATE LEGISLATIVE INITIATIVES FOR THE PRIVATE SECTOR

In addition to the programmatic options identified above, the State can create mandates and requirements to facilitate the development of waste prevention programs by the commercial sector. These mandates should not act as a substitute for State level assistance programs.

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[9] Public Resources Code, §42145 [SB 2310 (Bergeson), Chapter 1543, statutes of 1990]

[10] California Revenue and Taxation Code, Sales and Use Tax Law - § 6358.1, Public Resources Code §42511

As is the case in all other chapters, the legislative initiatives described below are by no means inclusive of all the bills that can be developed to encourage waste prevention. Rather, they are provided in an effort to indicate the type of legislation that could be enacted to encourage source reduction in the private sector. Notably missing from the list of legislative and regulatory initiatives described below are advanced disposal fees and taxes on virgin resource extraction. California is evaluating these initiatives in other research efforts.

A. Durability Standards

Durability standards would be applied to specific categories of durable manufactured products. Franklin Associates defines durable goods as: white goods, furniture, rubber tires, small appliances, and lead acid automotive appliances.[11]

Durability standards have received minimal attention to date outside of California. Hence, there is little available information pertaining to them, and no known legislated durability standards presently in effect. This is due largely to the difficulty and complexity of determining standards for the wide variety of products and packages available. Nevertheless, durability standards could serve as an important tool for encouraging industries to make higher quality products while complementing efforts to procure products with high durability ratings. In order to develop durability standards, the following questions should be addressed:[12]

- What is the product's or its components useful life? Is it reusable or recyclable?
- Does the product have a warranty or service contract?
- Is the product easily repairable?
- What is the disposal difficulty associated with the product?
- What are the alternatives to the product?

Product durability standards would target manufacturers of durable goods. As indicated in "*Source Reduction for Municipalities: An Agenda for Action*," one way to develop a durability standard would entail requiring manufacturers to create or extend existing warranty provisions. These provisions might include making the warranty complete and unconditional, increasing the length of time covered under warranty, and changing repair procedures to make repair alternatives more convenient and attractive.[13]

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[11] Franklin Associates. 1990. "Characterization of Municipal Solid Waste in the United States." Prepared for United States Environmental Protection Agency (Document: EPA/530-SW-90-042). Washington, D.C.

[12] Based on: Wirka Jeanne. "Wrapped in Plastics." Environmental Action Foundation, Washington, D.C.

[13] Cisternas and Swanson. 1991. "Source Reduction for Municipalities: and Agenda for Action." University of California, Los Angeles Graduate School of Architecture and Urban Planning.

B. Reusability Standards

Reuse standards require that a product or package is reusable/refillable. Reuse standards are usually applied to specific types of beverage packages. In general, such standards are not developed as stand-alone legislation, but rather as one way of complying with a broader waste prevention standard. For example, the Model Waste Reduction Legislation developed by the Coalition of Northeastern Governors allows packagers to create packages that are reusable at least five times as one means of complying with the 15% reduction standard established by the bill (see below).

There are no known reuse standards for beverage packages in effect at the state level in the United States. However the State of Rhode Island exempts from the state sales tax all returnable containers (H. 1963, 1988).

Some Canadian provinces and European countries have imposed some form of reuse standards on beverage packages. Ontario requires that soft drinks be sold in refillable bottles and has proposed a requirement that all beverages be sold in refillable containers. Since 1977, statutory orders in Denmark have required that all domestically produced beverage bottles be refillable. France has required that all cafes, restaurants, hotels, and institutions purchase beer, mineral water, and soft drinks in refillable bottles only. Finally, as of 1990, all beverage industries in Germany were required to continue using current levels of returnable containers, which were 72% of total containers for beer, water, soft drinks, fruit juice and wines, and 17% for milk bottles.[14]

C. CONEG Packaging Reduction Initiatives

As a result of its ubiquitous presence in the waste stream, packaging has received a great deal of legislative attention in the past few years.

Two model packaging reduction legislative initiatives carried out by the Coalition of Northeastern Governors are described below. These initiatives are closely related to similar legislation being developed in the state of Washington (See Appendix A). The packaging industry played a large role in assisting in the development of the legislative initiatives described below. This process in described in more detail in Appendix A.

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[14] McCarthy, James. 1991. "Recycling and Reducing Packaging Waste: How the United States Compares to Other Countries." Congressional Research Service, Washington, D.C.

Legislative Reference

Coalition of Northeastern Governors (CONEG) Model Packaging Waste Reduction Legislation:[15] The CONEG model waste reduction legislation establishes a 15% reduction rate to be achieved by 1995. Manufacturers can comply with the reduction standard by selecting one of two approaches: the Company Wide Approach or the Package Specific Approach. The Company-wide option applies to all packaging materials produced by a company. The options for compliance are additive and applied to a base year of 1988. They include:

- Eliminating 10%-15% of the packaging material utilized in production; and/or,
- Creating packages that are reusable at least 5 times; and/or,
- Facilitating the recovery of packaging materials at a rate of 15%; and/or,
- Utilizing recycled materials at a rate of 15%; and/or,
- Creating packages out of materials that are recycled at a rate of 15%.

The second approach offered to packagers by the CONEG legislation is the "package-specific approach." This approach does not apply to a 1988 base year. To meet the 15% reduction standard, packagers choosing this method of compliance must ensure that all packages in a given product line are:

- Recycled at a 25% rate; and/or,
- Contain 25% recycled content; and/or,
- Reusable at least 5 times; and/or,
- Reduced or eliminated at a 15% rate.

CONEG Model Toxic Reduction Legislation:[16] CONEG has also created model toxic reduction legislation which targets packaging materials. This legislation has been passed in 13 states in the last year. The four elements regulated include lead, cadmium, mercury, and hexavalent chromium. The model legislation bans the intentional use of the aforementioned elements in packaging applications.

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[15] Coalition of Northeastern Governor's. "Model Waste Reduction Legislation." Washington, D.C. 1992.

[16] Coalition of Northeastern Governor's. "Model Toxic Reduction Legislation." Washington, D.C. 1992.

D. Other State Initiatives to Reduce Packaging Waste[17]

Like the CONEG Model Packaging Reduction Legislation, most state initiatives to reduce packaging waste include recycling as one means of compliance with a "reduction" standard. Since recycling is not considered waste prevention, we do not consider these waste prevention bills. Nonetheless, some examples of this type of legislation are provided below.

Connecticut, Public Act 88-231: No person shall sell or offer for sale any beverage container composed of one or more plastics if the basic structure of the container, exclusive of the closure, also contains aluminum or steel (1988).

Iowa Senate File 83: Prohibits the manufacture or sale of a beverage container that is a plastic can (which is composed of metal and plastic material). Prohibits the sale of beverages packaged in plastic cans (1989).

Maine, P.L., 1989: Bans certain multi-material beverage containers including aseptic juice boxes.

Minnesota Waste Management Act, § 115a.5501(1): Establishes a 25% statewide per capita reduction in the amount of discarded packaging materials by 1995 (reduction standard can be met through recycling).

Washington, Waste Not Washington Act: Established a 25 member task force which included 50% representation from the packaging industry. The Task force developed a "Packaging Action Plan" which would reduce packaging waste by 20% by 1991 (however, reduction includes recycling). This plan is described in full detail in Appendix A.

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[17] Legislative references are based on: Environmental Action Foundation. "State Action on Packaging and Source Reduction: A Compendium of Legislative Options." Washington, D.C., 1992.

E. German Initiatives to Reduce Packaging Waste[18]

Legislative Reference

Germany's Packaging Initiative creates a direct incentive for manufacturers to reduce waste because it effectively internalizes the cost of packaging disposal by making packaging producers responsible for the disposal and recycling of packaging materials. The law bans the disposal of packaging materials in the country's public solid waste management system.

The legislation contains three primary components. The first requires that distribution packaging (i.e., pallets, corrugated containers, etc.) be collected and reclaimed by producers and distributors. The second allows consumers to take secondary packages (i.e., blister packs films and exterior cartons) back to point-of-sale retailers. The third requires retailers to collect and reclaim primary packages (i.e., all containers for liquids, beverages, soaps, detergents, etc.). In addition, all primary packages will have a $0.30 deposit imposed on them in order to give consumers an incentive to return the containers to retailers. Retailers are exempted from the deposit system if, by 1993, 50% of all packages are sorted and recycled by industry (increasing to 80% by 1995). In addition, under a separate provision, industry must maintain the use of at least the current level of refillable containers (for beer, water, soft drinks, fruit juice and wine the level is 72%, for milk it is 17%).

In response to retailer pressure, the packaging industry has created the "Dual System" conglomeration which will be responsible for collection and processing of packaging waste. Four hundred companies are involved with the conglomerate. The Dual System (which goes under the acronym DSD) will place a green dot on all packages included in the industry-established collection and recycling system. Stores not using green dot products will be responsible for collecting the associated packaging, which gives all stores a strong incentive to demand green dot products. In order to become part of the DSD, packagers must pay a licensing fee of $0.06 to $0.12 per container.

By making industry responsible for the waste it creates, Germany has given manufacturers a strong incentive to reduce the quantity of packaging materials that they will have to collect. For example, Colgate-Palmolive has eliminated cardboard boxes for its toothpaste products, and Bristol Myers has eliminated a plastic

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[18] Information on German Packaging reduction initiatives based on:

Fishbein, Bette. "European Packaging Initiatives: Leading the Way on Source Reduction, Resource Recycling, March, 1992.

McCarthy, James. 1991. Ibid.

disposable tray used to hold deodorants together in distribution. The German federal environment minister anticipates a reduction in packaging waste of 6-8 million tons per year.

This legislation is facing legal challenges associated with violation of Anti-trust laws and protectionism. The anti-trust law claims are in relation to the Dual System which will in essence have full control of the recycling collection system. The protectionist claims relate to discrimination against imported packages.

F. Labelling Regulations

Labelling regulations can be developed by the state to assist consumers in selecting products with the least waste impact. Labelling regulations tend to relate to recycling as opposed to waste prevention. A variety of labelling efforts are being carried out in conjunction with consumer outreach programs (See Appendix B), however, these efforts are not regulatory.

Labelling standards pertaining to source reduction have not been widely developed in the United States since the vast majority of products are marketed nationwide and it would simply be impractical and inefficient to develop labelling standards on a state by state basis. Nevertheless, some states, notably Vermont, have enacted shelf labelling regulations for implementation at the retail level.

Legislative Examples:

State of Vermont: The Vermont State Legislature has enacted legislation that requires retailers to label specific HHW products in an effort to reduce the toxicity of the waste stream (*Vermont Act 282*). Products affected by the legislation are listed below. The Vermont initiative requires retailers to place state specified labels either on the shelf or in the direct vicinity of the product. The Vermont label conveys a negative message: "These Products contain hazardous ingredients, reduce toxic use." These products include:

- Auto Maintenance Products: Motor oil, transmission fluid additives, engine lubricants, antifreeze, windshield wiper solution, lead-acid batteries, engine cleaners and solvents, gas treatments, car waxes, gas line freeze-up products

- Hobby and Repair Products: Brush, spray, and aerosol paints, lacquers and thinners, alcohols--cresol and naphtha, mineral spirits, turpentine, wood preservatives, glues and adhesives, photographic chemicals

- Agricultural and Outdoor Products: Fertilizers, pesticides, pool chemicals, self-lighting charcoal, charcoal lighter fluid, butane lighters

- Cleaning Products: Furniture polishes and stains, floor waxes, car waxes, spray dust cleaners, drain cleaners, toilet bowel cleaners, oven cleaners, spot and stain removers with petroleum bases, all aerosols (except personal care products), shoe polish

In concurrence with the labelling campaign, the Vermont Agency of Natural Resources (ANR) has launched an extensive HHW awareness campaign to help residents make informed decisions with respect to HHW consumption and reduction. According to ANR staff, when fully implemented the project will cost the state well under $100,000 (or about $0.20/resident). This cost includes salary for a proposed staff position which would be created to provide technical assistance to retailers and enforce the program.

Contact: Michael Bender, Central Vermont Regional Planning Commission, 26 State Street, Montpelier, Vermont 05602, (802) 828-1110.

G. European and Canadian Positive Labelling[19]

Germany and Canada have developed similar positive federal labelling systems for packages which meet certain guidelines. Germany established legislation to develop a positive labelling campaign to promote environmental awareness in 1978. The "Blue Angel" seal is awarded to those products that meet criteria established by an independent commission. Manufacturers pay fees to use the logos on their products, which cover all program costs. Over 3,000 products now carry the logo and German officials report that as a result of the program, German consumers are far more environmentally aware than are other European consumers.

For a further description of these private sector initiatives, refer to Appendix A.

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[19] Watson, Tom. "Product Labelling Efforts are on the March Worldwide," Resource Recycling. Portland, Oregon. September, 1989.

CHAPTER 4 STATE ROLES IN WASTE PREVENTION AT THE LOCAL LEVEL

INTRODUCTION

Though cities and counties could implement waste prevention programs without the assistance of the State, this Chapter is principally concerned with the following question: How can the state help local governments pursue waste prevention activities? We assume here that most city and county efforts will be targeted at residents/consumers, rather than the private sector.

Local jurisdictions outside of California face similar barriers to implementation of waste prevention programs. These include:

- The benefits associated with waste prevention are difficult to measure.
- Waste prevention programs require a long-term, dedicated effort which may not reveal direct benefits in the short term.
- The priority of the local solid waste manager entails alleviating capacity bottlenecks, and establishing logistical processes to get waste and other materials from the point of generation to the point of process or disposal.
- Many of the factors affecting waste prevention at the local level (i.e., decisions made in the production and consumption of goods) are beyond the sphere of control of local solid waste managers.

Despite the factors listed above, some municipalities have dedicated substantial time and effort to waste prevention programs. Seattle spends over $800,000 per year on numerous waste prevention activities, and Olmstead County, Minnesota dedicates roughly $50,000 per year to their efforts. Both of these localities have realized reductions in their waste stream as a result (See Appendices B and C).

Perhaps the most effective programs that local governments have implemented, in terms of increasing awareness, changing behavior, and reducing waste, are consumer awareness programs at the retail level. These programs succeed because they target every consumer. Further, since retail stores represent large, confined, point sources of waste, program results are easier to measure. Finally, since programs of this nature can be implemented under "one roof" they may be more cost-effective than outreach programs targeting a wide variety of decentralized sources (households). Additionally, local programs are well suited to targeting waste generated by local government. Olmstead County has made some significant, measurable progress in this area over the last year.

PART I LOCAL LEVEL ASSISTANCE PROGRAMS

State government can provide guidance to local governments in establishing and implementing waste prevention programs. A state assistance program might include the following steps:

- Creating standardized guidelines and strategies for developing local programs;
- Disseminating general outreach materials, providing workshops and educational forums for soliciting input from local officials;
- Conducting pilot projects to evaluate local programmatic options and disseminating results;
- Creating curricula to be used in public schools;
- Providing grant funding to be used in local program development (as discussed in Chapter 2); and,
- Providing informational materials and incentives to assist local businesses and industries to conduct waste audits and implement waste reduction programs.

Local assistance programs should be flexible enough to take into account the different needs of respective jurisdictions, yet standard enough to transfer from one local government to the next without major modification.

Program Examples

Washington Department of Waste Reduction, Recycling and Litter Control (WRRLC): The WRRLC has just started the second year of a program called the Waste Reduction Public Information and Education Campaign. The first year of the program was spent compiling and developing educational materials in conjunction with local governments. A matching grant program was initiated in the first year and offered to localities to research, implement and design local outreach strategies.

Based on the information generated in the first year of activities, the WRRLC plans to develop a menu of educational items which can be used at the local level for program implementation, including educational materials and capital equipment such as worm bins. Each item will be assigned a dollar value and the state will allocate $1 million in technical assistance programs from the "menu" to all counties in the state based on population.

This technical assistance program is designed to allow localities to select the mix of strategies that is best suited to their needs. Municipalities should be able to focus on program implementation, while avoiding duplication of efforts in program development activities. The result should be lower overall costs, as the state takes advantage of economies of scale in program design.

For a more detailed description of Washington's local outreach programs and references see Appendix B, "Comprehensive State Programs".

Contact: Joy St. Germain, Washington Department of Ecology, P.O. Box 4-7600, Olympia, Washington 98504-7600, (206) 459-6994.

Minnesota Office of Waste Management(OWM): The OWM is required by the Minnesota Waste Management Act to develop statewide education plans that communities can adapt for local use. The OWM has developed a waste education manual for communities which offers step-by-step guidance and includes camera-ready art for print advertising. In addition, the OWM sponsors an annual solid waste seminar where source reduction issues and achievements at the local level are discussed.

As described in Chapter 2, a case study of waste reduction strategies for local governments was conducted in Itasca County. This study demonstrated savings resulting from source reduction strategies implemented at the County Courthouse and 16 Roads and Bridge Department garages. The OWM provided workshops and training seminars for Itasca County employees. The project prevented 3,782 pounds of waste and resulted in an annual benefit of $4,780, not including avoided tipping fees. The success of this program in providing other governments with transferable information is evident in Olmstead County, which has used the implementation guide to establish its own local government source reduction program (See Appendix B).

Recent initiation of the SMART shoppers program (Saving Money and Reducing Trash) is another example of the "case study" approach that the OWM uses to provide assistance to localities. The program is a high profile consumer outreach campaign that emphasizes cost savings associated with less wasteful products. SMART has already been implemented by the state in two grocery stores. The OWM has developed a packet for local governments which includes all necessary materials to implement the program. The total cost of initiating the first year of the SMART program and developing implementation guides was roughly $200,000 (Osdaba, 1992--see Appendix D). Because the program targets grocery stores, it is transferable to virtually every county in the state. For a more detailed description of Minnesota's local assistance programs see Appendix D.

Contact: Kenneth Brown, Office of Waste Management, 1350 Energy Lane, St. Paul Minnesota, 55108, (612) 649-5750.

PART II STATE LEGISLATIVE INITIATIVES TO REDUCE WASTE AT THE LOCAL LEVEL

In addition to assistance programs, the state can promulgate legislation that will have the effect of reducing waste at the local level. An example of this type of legislation is provided below.

Variable Rate Pricing Requirements

Variable rate pricing structures, or quantity based user fees (QBUFs), impose a fee on residential generators for solid waste disposal and processing services. These fees can be imposed based on either weight or volume and generally apply an increasing price to higher usage. Since most counties provide garbage collection services based on a flat tax or fee, residents do not have a direct incentive to reduce waste. Variable rate pricing policies give residents a direct economic incentive to reduce waste generation. Such point-of-disposal policies are typically implemented locally. However, the State can require that municipalities and counties implement such price structures. See Appendix B, for a more detailed description of quantity based user fees.

Program Examples

State of Minnesota, Waste Management Act: According to the Minnesota Waste Management Act of 1992, all counties must implement a variable rate pricing structure by 1993 (Minnesota Waste Management Act, 1993, see Appendix D). Minnesota is the only state with such a requirement.

Examples of local programs related to the above State programs are described in Appendix B. Assistance programs can provide localities with the information required to develop their own source reduction programs, as was the case in Olmstead County, Minnesota. In addition, private sector assistance programs developed by the State (see Chapter 3), will allow local officials to focus on source reduction activities that target their residential constituencies. The State can assist localities in developing general outreach, material specific outreach, and consumer education programs, but ultimately counties and municipalities will be responsible for implementing and maintaining the programs.

State-level quantity-based user fee requirements take the political burden off of localities to develop such fee structures on their own. They also make outreach programs targeted at residents more effective. As residents become more sensitive to the direct cost of disposal, they will have a greater incentive to find out how they can reduce their waste.

Finally, grant programs play an important role in virtually all of the programmatic activities carried out by localities. Grants may become less important as waste

prevention programs on the local level become better defined. Moreover, if communities can fund source reduction activities through quantity-based user fees, fewer sources of outside funding will be required to operate their programs. (Legislative actions are described in more detail in Chapters 2 and 3.)

Appendix C presents an overview of localities that have a defined and comprehensive source reduction program in place. Many of the local program components reflected in the preceding table and in Appendix B have been incorporated into the programs described in Appendix C in an attempt to develop a comprehensive approach to waste prevention.

APPENDIX A PRIVATE SECTOR PROGRAM COMPONENTS

I. INTRODUCTION

There are three general approaches that businesses can take to prevent waste. One approach, implementing programs in general operation, entails reducing the amount of waste that is generated by the business through changes in purchasing, procurement, and operation of the business in question. The second way that a business can reduce waste is by designing products packaging that make less waste after they are fully utilized. Incorporating waste prevention in the design process typically results in lower waste generation rates realized by the consumer of the product or service. The third way that businesses can contribute to waste prevention is by participating in cooperative efforts with state governments to achieve waste prevention goals.

There are a variety of specific waste prevention activities that are being carried out by companies throughout the nation without assistance from the public sector. The impetus behind these efforts appears to be the resulting economic advantages and the opportunity to convey a positive environmental image.

II. WASTE PREVENTION IN GENERAL OPERATIONS

Individual companies have the best handle on opportunities for decreasing volume and toxicity of waste generation because they have the most in-depth understanding of their specific operations and processes. The most successful private sector waste prevention programs share one common denominator: upper level managements' support and promotion of the program. Most companies implement source reduction strategies in conjunction with recycling and hazardous waste minimization efforts.

Program Examples:

McDonald's Corporation:[1] In the dawning of the "solid waste crisis," a few years back, one of the first companies to come under fire from the environmental community was the McDonald's Corporation. Environmentalists asserted that the corporation was contributing to the solid waste disposal dilemma by promoting the use of disposable packages. In response to public pressure, McDonald's has

[1] Based on: Environmental Defense Fund and McDonald's. 1991. Waste Reduction Task Force: Final Report. Washington, D.C.

initiated a comprehensive source reduction program in consultation with the Environmental Defense Fund.

Source reduction achievements to date include switching from polystyrene foam clam shells to paper wrapping for packaging all sandwiches, which has resulted in a 70-90% reduction in packaging volume. McDonald's is also in the process of reviewing the use of non-chlorine bleached paper in certain applications. In an effort to improve the environmental aspects of its packaging, a set of Waste Reduction Packaging Specifications developed by the McDonald's/EDF Task Force are being evaluated. The corporation is in the process of testing the use of: reusable shipping and bulk storage containers, durable shipping pallets, reusable coffee filters, pump style condiment dispensers, reusable coffee cups and lids for salads and breakfast entrees.

Finally, the McDonald's Corporation has adopted a Waste Reduction Policy that will be adopted throughout the corporate system in the form of and action plan that clearly defines the company's initiatives, identifies their status, departments responsible for implementation and management mechanisms to be employed to ensure integration into standard operating procedures.

Contact: McDonald's Environmental Affairs Department, McDonald's Plaza, Oak Brook, IL 60521.

AT&T:[2] A company wide source reduction goal to decrease paper use by 15% from 1990 levels by 1994 has been established by AT&T. This goal was motivated partially by economic considerations as the company estimates that if double sided copying is increased to 50%, the need for approximately 77 million sheets of paper will be eliminated, reducing annual purchasing costs by $385,000. AT&T is working in close concert with its copy machine suppliers to create a machine that will make duplexing operations the default mode. Thus, AT&T's efforts could have positive ramifications throughout the photocopying industry.

Park Plaza Hotel: Located in Boston, Massachusetts, the 977 room Park Plaza luxury hotel owned by the Saunders Corporation has made a commitment to implementing a comprehensive Environmental Action Program which includes reducing waste in all levels of operation. Goals of the program are to set an example for the hotel industry other businesses, and the guests of the hotel. The hotel's top management has initiated a "green team" of 25 employees which look for waste reduction opportunities in standard operating procedures. Pertaining to source reduction, the Park Plaza has eliminated the use of styrofoam, plastic tableware, and aerosols. Old linens, previously destined for disposal are now

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[2] Fishbein and Gelb. 1992. "Making Less Waste: A Planning Guide for Municipalities" Inform, New York, New York.

donated to local veteran shelters. All stationary is printed on dioxin free paper. Local pig farmers pick up the hotel's food scraps to use as feed. All miniature bathroom amenities have been eliminated and replaced by dispenser systems for shampoo, conditioner, soap, mouthwash, and body lotion eliminating the need for over 2 million plastic containers per year. After conducting a survey of guests, Park Plaza found out that 81% never use a shower cap, and 89% never use a shoeshine kit. Hence they now are only available upon request. Seventy cardboard pastry boxes the hotel receives each week are now returned for reuse. The hotel reports that it's environmental image has enhanced business and has received $750,000 in bookings specifically as a result of its program.

Contact: Tedd Saunders, Boston Park Plaza Hotel, 64 Arlington Street, Boston, Massachusetts 02117.

Sears Roebuck: Sears has initiated a company wide source reduction program which has established a goal of 10% reduction in volume or weight of packaging by the end of 1992, 25% by the end of 1994. The basis of their strategy includes, altering procurement practices to purchase less wasteful packages and materials; a key manufacturers roundtable session with major suppliers of products and packages; an internal steering committee composed of upper level management personnel; and high levels of communication with all personnel.

Contact: Keith Tice, Sears, Department 817, Sears Tower, Chicago, Illinois 60683. (312) 906-1224

Other sources which list specific business waste prevention programs in general operation are included below.

EPA is producing a compilation of industry case studies which will be released sometime in the fall of 1992.

Minnesota Office of Waste Management. "Examples of Source Reduction in Business." St. Paul, Minnesota, 1989.

Washington Department of Ecology. "Success through Waste Reduction: Proven Techniques From Washington Businesses." Providence, Rhode Island, 1988.

III. DESIGNING PRODUCTS AND PACKAGES FOR WASTE PREVENTION

Products and packages can be designed so that they produce less waste or are less toxic. Because designers are at the "front-end" of the production processes, they have the ability to strongly influence waste prevention. Designers are becoming increasingly aware of the major role that they play in reducing waste generated in both production and consumption of products and packages. This awareness may

be the result of an increasing demand by consumers for "green" products and packages.

Some state solid waste authorities have also played a role in fostering this awareness. For example, in 1987 the Rhode Island Solid Waste Management Corporation sponsored two (2) workshops on designing for source reduction and continues to address design issues in its "Source Reduction Task Force." One of the members on the Task Force is an Industrial Design Professor at the Rhode Island School of Design. He has taken the knowledge gained from the Task force and applied it to his curriculum, training young designers to take into account source reduction in the design and manufacturing process.

Program Examples:

International Business Machines, Inc. (IBM):[3] IBM has developed a guidebook for its packaging engineers entitled, "Environmental Design Guidelines for IBM Packaging Engineers (1990)." This guidebook addresses the following issues:

- Environmental Packaging Design Guide;
- CFC Elimination in Packages;
- Toxic Material Reduction;
- Recycling;
- Material Reduction and Reusable Package Guidelines;
- Pallet Reutilization; and,
- Customer Disposal of IBM Packages.

Contact: Allen Perry, IBM Corporation, San Jose, CA, (408) 256-9506.

University of the Arts:[4] Dr. Burnette, Chairman of the Industrial Design Department at the University of the Arts in Philadelphia, has developed "Principles of Environmental Design." These principles include the following:

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[3] Based on "Source Reduction and Reuse: Private Sector Initiatives," a Presentation by Allen Perry at the Eleventh Annual Recycling Congress and Exposition, Boston, Massachusetts, 9/16/92.

[4] Burnette, Charles. "Principles of Ecological Design." Innovation, the Journal of Industrial Designers Society of America. Great Falls, Virginia, 1990.

- Reduce the use of natural resources and energy products and services in order to reduce the potential for environmental damage, depletion, unnecessary work, waste and the need for waste reduction.

- Choose ecologically appropriate materials by knowing the performance of materials throughout their lives, both regarding the uses and reuses that you intend and can anticipate, and the effects, hazards and failures in the product or environment that may effect the material.

- Choose environmentally safe processes by understanding the side effects of the manufacturing process you employ and design to prevent or minimize harm or discomfort to the worker and to reduce energy consumption, harmful emissions, precipitation of particulate matter and material waste.

- Design for the Lives of the Product. Design environmental problems out of the product by designing for customer satisfaction and safety, optimum quality and durability, easy/minimum maintenance, the reuse or replacement of components and the recycling or reconstitution of all materials.

American Management Association Packaging Council (AMAPC): The AMAPC sponsored the development of a pamphlet entitled: "*Packaging and Solid Waste Management Strategies,*"[5] which includes useful information for designers. The Proposed Management Agenda developed in the pamphlet includes the following recommendations pertaining to source reduction in the design process.

- Reduce the thickness or weight of packaging to achieve source reduction;

- Eliminate the use of all pigments formulated with lead and chromium to decrease the toxicity of recycled products and incinerator ash; and,

- Introduce more innovative, environmentally superior packaging forms, such as pouches instead of bottles; products in concentrated forms that require smaller packages; and pouches of concentrate that can be used with refillable bottles.

Dr. Dianne Twede, Michigan State University, School of Packaging (MSU): The MSU School of Packaging has a basic mission to reduce packaging cost and waste. Dr. Dianne Twede, a packaging engineer and professor at MSU has conducted a wide variety of research pertaining to packaging reduction in the design process. Excerpts from a 1988 speaking engagement are provided below:

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[5] Erwin and Healy. 1990. "Packaging and Solid Waste Management Strategies." American Management Association Packaging Council, New York, New York.

"The incentive which solid waste managers can offer to make source reduction a higher priority is to make waste disposal costs an explicit cost for the manufacturer. I favor a waste disposal index, rather than a recycling or source reduction index, because the former would include the latter. And I believe that the index should be used to determine a tax for heavy contributors to waste. This tax would be best implemented in the package design process because that is where material costs are evaluated."[6]

Twede's research also shows that when firms producing packages are vertically integrated with firms disposing of packages, the customer firms typically request and obtain lower waste packages. She cites the following examples: Kimball ships furniture "uncartoned" by replacing corrugated boxes with plastic bags; General Motors demands returnable distribution packages.

Twede also discussed the waste generation implications associated with transportation carrier associations requirement to use corrugated fiberboard boxes (which has been in effect since 1920). She believes that governments can play a role in pressuring associations to abandon such rules so that less wasteful materials can be used.

Reduce, Reuse, Recycle Protective Packaging, R3P2:[7] R3P2 is a voluntary organization of industrial designers and engineers in the Bay area. Over 97 companies are involved with the organization. Monthly meetings are held and six committees have been formed to create a "Handbook for Environmentally Responsible Packaging" which was recently released. Issues addressed include:

- Overview and goals of the initiative;
- Design Guidelines;
- Material Reduction and Reuse Guidelines;
- Environmental Issues and Analysis Guidelines;
- Recovery Systems; and,

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[6] Twede, Dianne. "Opportunities for Public/Private Sector Cooperation to Minimize Packaging Waste," Speech written and presented by Twede at Rhode Island Solid Waste Management Corporation, Providence, Rhode Island, 1988.

[7] Based on "Source Reduction and Reuse: Private Sector Initiatives" a Presentation by Allen Perry at the Eleventh Annual Recycling Congress and Exposition, Boston, Massachusetts. 9/16/92.

- Standardized Symbols.

Contact: Paul Russel, Hewlett Packard, (415) 857-7482.

IV. COOPERATIVE EFFORTS WITH STATE GOVERNMENTS

Many businesses have played a key role in addressing waste prevention by participating in cooperative efforts with state governments to identify guidelines for waste prevention activities. Businesses have the ability to identify technical barriers associated with political proposals. They also may be capable of assisting government in developing attainable and realistic guidelines pertaining to waste prevention.

Program Examples:

Coalition of Northeastern Governor's Source Reduction Task Force (CONEG): CONEG is a non-profit policy research Center located in Washington, D.C. In 1988-89 CONEG convened a Source Reduction Task Force made up of representatives from businesses and government. The Task Force's work focused on source reduction of packaging. An Interim Report was released in April of 1989, which contained the following recommendations.[8]

- Voluntary Source Reduction by Industry: This initiative called for a coordinated program to identify and resolve conflicting source reduction standards and policies and create region-wide alternative policies and standards. States were called upon to create an awards program in order to recognize and promote industry achievements. The initiative also called for the development of an infrastructure to ensure a close communication between industry, government, and citizen groups. Such an infrastructure would include state guidance to industries in the establishment of source reduction efforts by industry, and a mechanism to interact with industry and citizen groups to encourage and account for voluntary source reduction efforts.

- Indices, Goals, and Standards: This initiative called on CONEG state to establish consistent source reduction goals. These goals would be developed in concert with industry and citizen groups and would include technical standards and timetables to achieve: volume reduction, weight reduction, toxicity reduction, recyclability, and recycled content.

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[8] Coalition of Northeastern Governors. 1989. "Interim Report of the Source Reduction Task Force." Washington, D.C.

- Consistent and Coordinated Education: This initiative called for development of informational outreach programs and curricula to be used in elementary, secondary, and university institutions. It also called on industry to share technologies for reducing waste. And it called for the development of a packaging label system to support consumer education efforts, and development of a curricula to be used in packaging design schools.

- Financial Incentives and Disincentives: This initiative called on state governments to use the following criteria in establishing the effectiveness of financial incentives or disincentives: uniformity in marketplace conditions, influence of consumer action to reduce the waste stream, influence on industry to modify packaging policies to reduce the volume weight or toxicity of packaging, market increase for recycled materials. The initiative also called for the development of model waste reduction legislation. Finally, the initiative called on states to identify their own procurement practices.

The interim report also paved the way for the final report which was released in September of 1989. The principal component of the final report was the establishment of the "Preferred Packaging Guidelines". These guidelines called on industry to adopt the following, in order of priority:[9]

- No Packaging: Eliminate the use of packages where feasible.

- Minimal Packaging: Develop alternatives to minimize packaging requirements through product design changes, etc.

- Consumable, Returnable or Refillable/Reusable Packages.

- Recyclable packages/ and recycled material in packages.

The Final Report also called for the development of a Northeast Source Reduction Council (or, Task Force) to coordinate source reduction efforts among businesses, governments, and the general public within the region. Recent initiatives of the Task Force include the model Legislation described in Chapter IV.

The CONEG process represented a massive regional cooperative effort between 10 state governments, and over 30 industry representatives, and numerous environmental organizations. The primary result of the Task Force's effort was to increase awareness.

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[9] Coalition of Northeastern Governors. 1989. "Final Report of the Source Reduction Task Force." Washington, D.C.

Numerous environmental and public interest groups indicated that the Task Force was biased by the domination of industry representatives. Further, they indicated that discussions among the Task Force were bogged down by endless arguments as a result of a lack of clear policy directions by public officials. Hence, the assertion was that public officials were essentially punting the development of source reduction policies to industry, which may not be motivated by the best interest of the general public.

Contact: Chip Foley, Coalition of Northeastern Governors, 400 North Capitol Street, N.W. Washington, D.C., (202) 783-6674

Washington Department of Ecology and The Packaging Task Force: Legislation in the State of Washington called on the Department of Ecology to convene a Packaging Task Force comprised of local government, environmental associations, and industry representatives. Fifty percent of the Task Force appointees were to be industry representatives according to the legislation. An "*Action Plan*" was developed by the Task Force in 1990. Findings and Recommendations of the Task Force are summarized below.[10]

- Plan Implementation Oversight: Includes formation of a Packaging Council comprised of 15 members with equal representation from business and industry, government, and the public.

- Waste Reduction: Development of a 10% packaging reduction goal (from 1990 levels) to be achieved by 1993, and an additional 2% per annum through 1998. Development of A Western Regional Packaging Board. Education of packaging professionals, including the establishment of a school of packaging design to be established within the Washington higher education system.

- Packaging Reuse: Specific examples of reuse options in bulk distribution systems and Commercial Packaging applications.

- Recycling Goals: Development of an across the board recycled content rate of 50%. Development of packaging labeling system which includes environmental friendliness, recycled content , and resin type. Development of recycling goals, rate incentives, and backhauling systems for material recovery.

- Model Toxic Legislation: Adoption of legislation to reduce toxics used in packaging materials.

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[10] Packaging Task Force. 1991. "Action Plan of The Packaging Task Force." Washington State Office of Waste Reduction, Department of Ecology. Olympia, Washington. 1991.

- Public Education: Development of a five year public education campaign including goals for consumers, media, retailers, package manufacturers, and governments.

- Budget and Revenues: An initial annual budget of roughly $2.7 million to finance activities proposed by the Task Force. Revenue for the program would come from an two-tenths increase in the additional 1% solid waste collection tax.

Washington Retail Association: In addition to the activities described above, the Washington Retail Association's Environmental Management Task Force created "*Preferred Packaging Procurement Guidelines*"[11] with the assistance of the Washington Department of Ecology. These guidelines are virtually identical to those developed by the CONEG Source Reduction Task Force (See above).

However, the guideline manual developed by the Washington Retail Association appear to be more action oriented then the CONEG publication. In concert with the Packaging Task Force's guidelines, the manual establishes a 25% reduction goal to be met by 1995. It includes:

- Methods for analyzing packaging;

- Sample form letters to be sent to vendors with blank questionnaires requesting vendors to indicate toxicity and volume reduction goals in addition to recycled content goals by packaging material type; and,

- Blank progress report data sheets to be used to evaluate elimination, minimization, refill/reuse, recyclability, post industrial recycled content, post consumer recycled content, total recycled content, and total reduction.

[11] Washington Retail Association. 1991. "Preferred Packaging Procurement Guidelines." Olympia, Washington.

APPENDIX B LOCAL LEVEL WASTE PREVENTION PROGRAM COMPONENTS

I. INTRODUCTION

To understand the role of the state in influencing waste prevention at the local level, it is important to understand what localities are presently doing to promote waste prevention. This appendix contains descriptions of program components that local governments throughout the country are employing to reduce or prevent solid waste. The table below shows specific program references contained in this appendix and their respective applicability to California's local level planning requirements, which identify waste prevention options that all counties must consider in developing County Solid Waste Management Plans. This Appendix contains information on specific local programs identified below, as well as contacts and bibliographic references.

Structure of Appendix B in Relation to Local Level Planning Requirements	
Source Reduction Program Alternative Requirements (Article 6.2,§18734.3)	**Appendix B: Program Component Examples**
Rate Structure Modifications	Part A: Quantity Based User Fees (see below)
Creation of Economic Incentives	Part B: Grants/Financial Assistance Programs
Technical Assistance	Part C: Award Programs Part D: Government Implementation Programs Part E: Business Assistance Programs Part F: Residential Assistance Programs 1) General Outreach 2) Material Specific Outreach 3) Consumer Outreach Part G: Local Waste Exchanges Part H: Local Implementation Assistance Programs

Structure of Appendix B in Relation to Local Level Planning Requirements	
Source Reduction Program Alternative Requirements (Article 6.2,§18734.3)	**Appendix B: Program Component Examples**
Regulatory Programs	Part A: Ordinances 1. Quantity Based User Fees 2. Local Bans 3. Local Government Procurement Requirements

In addition to appendix B, Appendix C contains information on "comprehensive" local waste prevention programs that were contacted for this analysis. Such programs include those localities which dedicate funds and/or staff specifically to waste prevention related activities. Not surprisingly, the only local comprehensive programs identified were in larger municipalities and counties. These include Seattle and King County Washington; Montgomery County, Maryland; New York City; and Olmstead County, Minnesota.

II. ORDINANCES

A. Quantity Based User Fees (QBUFS)

According to California's Planning Guidelines, every county in the State must consider rate structure modifications, which may include quantity based user fees in their local solid waste management plans. (Article 6.2, §18734.3a).

QBUFS provide residents with an economic incentive to reduce waste by creating a direct fee based on the level of solid waste services rendered. Bills for solid waste services can be levied by usage rates or subscription levels. The former requires that residents buy special bags or stickers at a cost consistent with the cost of collecting, processing and disposing of all materials handled in the solid waste system. Subscription based user fee systems are usually associated with a variable billing rate that increases or decreases per unit dependant on the level of service requested by the resident. In some subscription programs, cans are provided to residents based on the subscription level requested.

Some municipalities are beginning to experiment with truck mounted scales and bar code computer systems which bill residents based on the weight of materials disposed. QBUFs are most effectively implemented in conjunction with educational outreach program that identify alternatives for reducing waste generation.

By providing residents with a direct incentive to reduce waste, QBUF programs serve as the cornerstone of an effective local waste prevention program. Other benefits may include:

- Equity--many solid waste programs are billed through local taxes, wherein residents who generate less waste end up subsidizing residents who generate more.
- Cost control--residents are empowered with the ability to control their respective waste management costs.
- Reductions in overall solid waste management system costs.
- Funding--for waste prevention programs which typically do not generate revenues.
- Increased information--since houses are billed directly, there is increased information provided on household waste flows.
- Increased recycling and home composting rates.

Program Examples

The three case studies below are based on: *"Charging Households for Waste Collection and Disposal: The Effects of Weight or Volume Based Pricing on Solid Waste Management."*[12]

Seattle Solid Waste Utility (SSWU): The City of Seattle, Washington was one of the first large cities to implement user fees in 1981. Approximately 500,000 residents live in Seattle. Garbage collection services are provided by private haulers. Between 1988 and 1989 alone Seattle realized a 24% reduction in the quantity of waste disposed (No data was available on the effects of Seattle's user fee system on waste generation rates). Seattle established its rate structure based on a service level determined by the number of cans that the resident subscribes for from the City. The monthly rates which Seattle established for garbage can services are shown in Appendix C. Seattle residents may select the level of service they desire

[12] Research Triangle Institute. "Charging Households for Waste Collection and Disposal: The Effects of Weight or Volume Based Pricing on Solid Waste Management." Research Triangle, North Carolina. Prepared for the U.S. Environmental Protection Agency (EPA 530-SW-90-047), Washington, D.C.

on a periodic mailer which describes new garbage rates. Each mailer contains specific information that indicates how residents can reduce their garbage bills by employing specific waste prevention strategies.

Seattle is also beginning to experiment with actual weight based systems wherein bar coded garbage cans are weighed by a crane scale mounted to a collection vehicle. A bar code scanner feeds the weight data into a computer and residents are charged directly based on the weight of materials disposed. Weight based systems are particularly desirable as they are more accurate in determining the actual quantity of materials disposed and, thus, they are even more equitable than volume based systems.

Perkasie, Pennsylvania: Located in Bucks County, Perkasie is a small upper middle class suburban community with a population of 6,564 residents and 3,230 single family households. The borough operates its own solid waste collection system. Perkasie initiated its pay by the bag program during 1988 in response to sharply rising solid waste management costs. Bags were priced based on collection and disposal costs at $1.50 per 40 pound size, and $0.80 per 20 pound size. Prior to implementing the system, residents were paying a flat rate of $150 per year; after implementation, residents using large bags were paying an average of $120 per year. Multi-family dwellings were given the option of using the specially emblazoned bags, or contracting out to private haulers. Perkasie also established a sticker system ($5/per sticker) for bulky items and restricted disposal to one time per month.

According to a survey conducted by the community, residents indicated that as a result of the program they gave much more thought to the waste they throw away, and have changed purchasing patterns to reduce waste generation. Overall, waste collected for recycling and disposal declined from an average of 2,800 tons in the 1987 period, to roughly 1,900 tons in the 1988 period. However, the borough reported a substantial increase in backyard burning, and was forced to enact a burning ban. Additionally, numerous reports indicated that residents were illegally taking waste to commercial dumpsters. No increase in littering was reported.

Perkasie reported a substantial increase in administrative requirements during program start-up which declined substantially after start-up. During 1988, the borough incurred a $6,161 cost increase in solid waste O&M expenses which represented 3% of total operation and maintenance costs. During the first nine months of 1989, the borough reported a $2,044 dollar savings in total operation and maintenance costs while total costs of waste management declined by over 10%.

Ilion, New York: Roughly 9,500 residents live in Ilion, most of whom are high school graduates employed as assembly line workers, farm workers, and production workers. Ilion has operated a pay-by the bag program since 1988. Costs for the 30 gallon bag was $1.15 in 1988, and $1.50 in 1990. Costs for 16 gallon bags were $0.85 in 1989, and $1.20 in 1990. Bulky items are collected one time per month at a cost of $5 per item. In the first year of the program, Ilion decreased garbage collection tonnage by one half, and increased recycled tons by 2.5 times. Total material collected decreased from 4,550 tons in the 87-88 period to 2,530 tons in the 88-89 period. The village reports no increase in burning or illegal dumping.

B. Local Bans[13]

California Source Reduction Planning Guidelines allow counties to consider bans that result in reduction of waste, as opposed to substitution by another product; or bans that result in a net environmental benefits (Article 6.2, §18730 (d)(4)(A),(B)).

Local bans on certain problem materials have become increasingly popular over the past five years as a mechanism for raising public awareness about disposal problems associated with certain types of materials. Some localities use bans to "send a message" to industry and/or state and federal governments. Typically, local measures to prohibit the sale of products, packages or materials are in the form of either retail bans which prohibit retailers from selling the item in question, or procurement bans prohibiting local government from buying certain problem materials.

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[13] For additional information, see:

Environmental Action Foundation. 1992. "Designing a Comprehensive State Bill: A Menu of Legislative Options." Washington, D.C.

Cisternas and Swanson. 1991. "Source Reduction For Municipalities, An Agenda for Action," University of California Graduate School of Planning and Urban Studies. Los Angeles, California.

Rathbun, Peter. 1990. "Just Say No: The Role of Material Bans in Integrated Waste Management." The Center for Policy Alternatives. Washington, D.C.

Menell, Peter. "Beyond the Throwaway Society: An Incentive Approach to Regulating Municipal Solid Waste." John M. Olin Program in Law and Economics, Stanford Law School. Stanford, CA.

Two types of bans can be developed. One is a categorical ban that simply bans the use of a certain type of material, product or package. The other is a conditional ban which prevents the sale of a goods, materials, or products unless a specified prevention condition is met. Bans suffer from the fundamental weakness of not offering any alternative to the material banned, and may result in negative substitution if poorly conceived. For example, most municipal level bans appear to be targeted at disposable products, (in particular polystyrene). It is likely that banning the use of polystyrene simply results in substitution with paper materials. One of polystyrene's chief beneficial characteristics is that it is a good insulator. If a polystyrene cup is substituted with a paper material for holding hot food, more paper may be required to achieve the same insulation properties of polystyrene.

Program Examples

Minneapolis/St. Paul, Minnesota: City Ordinance to Promote Environmentally Acceptable Packages represents a conditional ban that prohibits the use of packaging that is not reusable 5 times, recyclable (collected in local programs), or degradable. This ordinance was passed in 1989.

Suffolk County: Resolution No. 1869-87, bans the use of packaging in retail food establishments that is non-biodegradable, or is made of polystyrene or polyvinyl chloride, 1988.

Portland, Oregon: Bans the use of polystyrene foam by restaurants or other retail food vendors after January 1990.

C. Local Government Procurement Requirements

California Source Reduction Planning Guidelines allow counties to consider adopting ordinances that meet durability, recyclability, reusability, or recycled material content in procurement requirements(Article 6.2, §18730 (d)(1)(A)(B)(C)(D)).

One way that local governments can directly implement source reduction programs is by issuing procurement guidelines. State purchasing programs can serve as an example for local programs. Local governments can issue ordinances requiring government purchase of products that are less toxic, contain less packaging, are more durable, etc. As is the case at the state level, such programs can provide transferable data that can be used in implementing local business source reduction programs.

Program Examples:

"Source Reduction for Municipalities: An Agenda for Action" (Cisternas and Swanson, 1991):[14] identifies five methods of reducing waste through procurement guidelines at the local level. These include:

- Procuring products with reduced packaging--Determining whether packaging is necessary for shipping to the local agency, and requesting or requiring vendors to reduce or take back excessive packaging.

- Replacement of disposables by reusable counterparts--Ceasing to offer disposable coffee cups, and replacing them with ceramic mugs, purchasing reusable air filters, installing cloth roll towels, and requiring refilling of toner cartridges.

- Procurement of more "durable" durables--This generally entails purchasing durable products with longer warranties and service contracts. Since such items generally cost more, a price preference may have to be applied.

- Procurement of equipment conducive to source reduction practices--this might include items such as double sided copiers, and laser printers, or mulching attachments for lawnmowers.

- Procurement of products with reduced toxicity--products such as lawn care herbicides and pesticides, and or cleaning supplies should be closely evaluated to determine possible toxicity levels and alternatives.

Dade County, Florida: Dade County has an ordinance that requires vendors to recycle or reuse packages. One vendor is now using reusable blankets to ship furniture items to the county rather than disposable packaging items. Dade county ordinances also require dual sided printing and copying in all government operations.[15]

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[14] Cisternas and Swanson. 1991. Ibid.

[15] Based on "Public Policy on Source Reduction and Reuse," a presentation by Eleanor Lewis at the Eleventh Annual National Recycling Congress and Exposition, Boston, Massachusetts, 9/15/92.

III. LOCAL GRANTS/FINANCIAL ASSISTANCE PROGRAMS

California Source Reduction Planning Guidelines allow counties to consider creating economic incentives including grants (Article 6.2, §18730 (b)).

Some local governments are beginning to issue small grants to businesses and community organizations to demonstrate or administer source reduction programs. Local grant programs usually cannot devote the same level of resources as state programs.

Program Examples

Seattle Solid Waste Utility: The Utility's Environmental Allowance Program is an annual grants program that solicits innovative source reduction proposals from the community. In 1991, eight proposals totalling $80,000 were funded. These grants included:

- Nurses association educational project on adult incontinence products;
- Elimination of disposable products from a childhood education center;
- Purchase of reusable plastic produce boxes for use in a food cooperative;
- Worm bin education program for elementary schools;
- Series of day-long open houses at two private homes where extensive source reduction was implemented; and,
- Organization of quarterly rummage sales for ethnic neighborhoods.

Contact: Carl Woestwin, Seattle Solid Waste Utility, 710 Second Avenue, Seattle, Washington 98104. (206) 684-4684.

King County, Solid Waste Management Division: The Solid Waste Division has initiated a unique, incentive based grant program called "*Dollars for Data.*" The program provides financial assistance to businesses and institutions that provide quantitative data that identifies the impact of specific waste prevention strategies on operating costs. Four local establishments were selected and are presently keeping records that indicate waste quantities, the prevention strategies selected, and their impact on equipment and operating costs over a two year period. The establishments selected include a food processor, a beauty salon, a large department store and a high school. Upon completion of the studies, the results will be made available to similar establishments.

Contact: Kathryn Howard Boyd, King County Solid Waste Division, 400 Yesler Way, Room 600, Seattle, Washington 98104-2637. (206)-296-8455

IV. AWARD PROGRAMS

California Source Reduction Planning Guidelines allow counties to consider awards and other types of recognition for source reduction activities.(Article 6.2, §18730 (c)(5)).

Award programs administered by local level governments may be less costly and extensive than programs administered by the State (See Chapter 4). On the other hand, local award programs are not as visible as those issued by the state and may not provide the same level of incentive to participate. However, such programs can create high visibility for local level waste prevention achievements by community groups, businesses, or government officials.

Program Examples:

Olmstead County, Minnesota: Award ceremonies for outstanding source reduction achievement in the commercial sector are held on a periodic basis. The source reduction coordinator spends 1/2 day per month collecting information and setting up ceremonies. County Commissioners have commended the coordinator on this program and would like to have one for county employees.

Contact: Jack Stansfield, Olmstead County Public Works Department, 2122 Campus Drive SE, Rochester, MN 55904-4744. (507) 285-8231.

V. LOCAL GOVERNMENT WASTE PREVENTION IMPLEMENTATION

California Source Reduction Planning Guidelines allow counties to consider non-procurement source reduction programs such as employee education, changes in office practices to increase the use of scrap paper, increased use of electronic mail, and increased double sided copying (Article 6.2, §18730 (c)(6)).

Government can play a key role in facilitating the implementation of waste prevention programs for the residential and commercial/industrial sectors. A useful role for government agencies is to test different waste prevention programs at their offices before developing plans for waste prevention in other sectors.

Local government waste prevention activities are most effective and comprehensive when they are spearheaded by an individual who is in charge of coordinating activities, implementation, and resources. Centralization of responsibility in one program results in programs with lower cost and greater efficiency.

Program Examples:

Olmstead County, Minnesota: The Olmstead county government source reduction program is one of the most comprehensive programs of its kind on the local level. The program is administered by one employee who has dedicated a significant portion of his time to implementing the programs identified below (the coordinator also dedicates time to residential programs, see Appendix C for a full description of the program).

- **Equipment air filter reuse program:** A company in the Olmstead area cleans air filters, which prolongs their life, and reduces the number of new filters needed. The Public Works and Highway departments have been targeted. The Highway departments have found it cost effective to have air filters cleaned for heavy equipment only, and are currently not doing cars and light vehicles. Public works is now purchasing only 25% of filters compared to previous years. Garbage disposal was reduced by 427 pounds in one year. The coordinator estimates spending 2 months at 1/4 time to implement the program. Information to relevant businesses is being provided. An indirect but important result is the economic benefit provided to the company which provides the cleaning service.

- **Refurbishing computer cartridges and reinking/restuffing printer ribbons:** This strategy has been implemented in one county department and will be expanded to all others eventually. Cost of refurbishing is 50-60% of purchasing new ones. The coordinator spent 1 day/week for 2 months on this project.

- **Reduction of junk mail:** County offices are putting all junk mail in a box and weighing it after one week. An office volunteer takes responsibility for writing to the sender requesting to be removed from the mailing list. The program has only been operating for four months, but they have found reductions varying from 1 lb/week to 18-25 lb/week. The program is voluntary, but the coordinator hopes that all offices will eventually adopt it. The coordinator spent 1 day/week for 2-3 months to start the program, but after implementation now spends only half as much and consists only of program maintenance presently. This program is a direct reflection of a transferable technical assistance program originally developed at the State level.

- **Office supply swap:** Offices are encouraged to keep things they don't have use for in a dedicated place. When enough is accumulated, they either

circulate a listing of the items to other departments or have a "come and get it" day. One office got rid of 8 out of 9 boxes of supplies this way.

- **"Trash Busters"** A volunteer group of county employees meets one hour/month to brainstorm and develop source reduction strategies. The employees are paid for their time on this committee. The only time required by the coordinator was the development of an initial announcement in the county newsletter.

- **Procurement:** The coordinator works with the purchasing department to reduce waste generation in product packaging, and reusables. For example, the coordinator, wrote specifications for a photocopiers bid conference that required all bidders to take back packaging and toner cartridges. The coordinator is now spending 1-1.5 days per week on this program.

- **Newsletter column:** Source reduction success stories are published by the coordinator in the county employees newsletter that is mailed to employee homes. The coordinator spends 1/2 day per month preparing articles and photographs.

Contact: Jack Stansfield, Olmstead County Public Works Department, 2122 Campus Drive SE, Rochester, MN 55904-4744. (507) 285-8231.

VI. BUSINESS WASTE PREVENTION ASSISTANCE PROGRAM COMPONENTS

California Source Reduction Planning Guidelines allow counties to consider technical assistance to industry and consumer organizations (Article 6.2, §18730 (c)(6)). The extent to which local governments provide technical assistance to the business sector varies widely depending on the amount of state assistance and available resources. Since most local governments do not assume responsibility for handling commercial and industrial solid waste, they often do not focus their resources and programs on this sector.

Most local level programs targeted at the commercial sector focus on assisting with waste audit activities, and providing technical assistance, or general information to local commercial establishments. Waste audit evaluation procedures have been developed by many local governments. Audit manuals can shed light on where waste prevention opportunities may exist, but do not in and of themselves, reflect a waste prevention strategy. Further, the development of waste audit manuals

appropriate only to a specific jurisdiction could be avoided with proper state guidance.

Local governments are able to facilitate and coordinate technical assistance programs to the commercial and industrial sectors by promoting volunteerism through local business organizations. These business organizations have the expertise and credibility to provide source reduction advice to other businesses. Other local governments have formed coalitions with adjoining counties to efficiently facilitate business implementation programs. Finally, some local governments simply provide general information to local businesses pertaining to general techniques for reducing waste.

Program Examples

Anoka County, Minnesota and the Metropolitan Council: The Metro Council provided funding and staff resources for the development of *"Resourceful Waste Management: A Guide for Minnesota/Metropolitan Area Business and Industry*, 1991. This guide was developed by representatives from four metropolitan area counties and a representative from the St. Paul Area Chamber of Commerce. Anoka County took the lead in developing the guide.

The guide includes background information on waste reduction, a waste reduction checklist, opportunities for reuse, preparation of waste auditing and planning information, and hazardous waste material management issues. In addition, the guide contains an extensive listing of contacts and resources for additional information. Finally, the guide provided an evaluation form for businesses to fill out and return to the county. Feedback has been extremely positive according to Anoka County. Over 5,000 guides were produced and mailed to every business in the county. This allows county officials to devote less time to providing on-site technical assistance. Development of the guide required approximately 6 months of two employees, one of whom was an intern. Meeting were held on a periodic basis to coordinate activities with other counties. The guides cost approximately $1.50-2.00 each for printing and mailing.

Contact: Susan Doll, County of Anoka Courthouse, 325 East Main Street, Anoka, Minnesota 55303. (612) 421-4760.

Seattle Solid Waste Utility: The "Tame the Paper Tiger" campaign includes a pamphlet describing ways to cut down on office paper use, and promotion of recycled paper. Funds for printing the pamphlet come out of the source reduction

internal promotion budget, which totals $51,000 (this figure reflects the amount of promoting all of Seattle's source reduction programs).

Contact: Carl Woestwin, Seattle Solid Waste Utility, 710 Second Avenue, Seattle, Washington 98104. (206) 684-4684.

VII. RESIDENTIAL ASSISTANCE PROGRAM COMPONENTS

California Source Reduction Planning Guidelines allow counties to consider technical assistance or instructional and promotional alternatives which may include waste evaluations, establishment of backyard compost programs, and educational efforts, such as consumer awareness programs, public forums, etc (Article 6.2, §18730 (c)(1)(2)(4)).

Programs targeted at residential households appear to be the focus of many current local source reduction activities. This may be a function of the fact that local jurisdictions tend to handle principally residential waste as opposed to commercial and industrial solid waste. Residential assistance programs are divided into three separate categories: general outreach, material specific outreach, and consumer outreach.

A. General Residential Outreach Programs

General residential outreach programs do not target a single material or group of materials, but rather attempt to provide a wide variety of information related to source reduction practices that can be employed to reduce waste in everyday activities. The effect and result of this type of program is extremely difficult to evaluate, since no single material is targeted. Activities may include the development of brochures or television advertisements. Typically, local level source reduction activities in this area are carried out in conjunction with recycling and composting educational campaigns. Program expenses will vary depending on the type of educational or promotional strategy adopted.

Program Examples

New York City Bureau of Waste Prevention, Reuse and Recycling (BWPRR): New York City launched a subway waste prevention advertisement campaign on 6,000 of its subway cars which focused on waste prevention in the home, at work and while shopping. The advertisement encouraged commuters to call or write for a free "*Waste Reduction Handbook.*" The Department received approximately 3,000

requests for the pamphlet as a result of the campaign. The BWPRR spent a $119,000 on the program and distributed over 65,000 waste reduction handbooks in FY 1991.

Contact: Dave Kleckner, Bureau of Waste Prevention, Reuse and Recycling NYCDOS, 44 Beaver St.,New York, New York 10004. (212) 837-8178

Seattle Solid Waste Utility: *Use it Again, Seattle!* is a directory of rental, repair and used goods services that is distributed through libraries, businesses and community service locations. The directory is updated periodically. Seattle performed a partial survey of businesses that may have been affected by the Use it Again, Seattle! booklet, but the results were inconclusive.

Contact: Carl Woestwin, Seattle Solid Waste Utility, 710 Second Avenue, Seattle, Washington 98104. (206) 684-4684.

Saint Paul Neighborhood Energy Consortium: The "Green House Evaluation Program" consisted of a workshop provided to local neighborhoods in the St. Paul area. The program workshop provided information on source reduction, energy conservation, and water conservation. In addition, it provided attendees with an opportunity to sign up for a free "Green House Evaluation." No information on program results. Oil overcharge funds provided financing for the program but cost information was not available.

Contact: St. Paul Neighborhood Energy Consortium, 475 North Cleavland St. #100, St. Paul, MN 55104. (612) 644-5436.

King County Solid Waste Management Division: King County Washington has developed a "Home Waste Guide" which was mailed to all residents in the area. This guide includes a "Home Waste Quiz," which offers tips on waste reduction practices while allowing residents to evaluate their in-house reduction and recycling activities. The guide also contains a "Resource Catalog" which lists contacts for more detailed information. Finally, the guide contains a "Waste Reducer's Checklist," which explains specific ways of reducing, reusing, recycling, and composting home waste. The King County guide cost the Solid Waste Management Authority approximately $9,000 to develop and distribute; printing and publishing costs were paid for by the U.S. Environmental Protection Agency. According to a staff member in King County, the program has been extremely well received by local residents.

Contact: Cheryl Waters, King County Solid Waste Division, 400 Yesler Way, Room 600, Seattle, Washington 98104-2637. (206)-296-8455

B. Material Specific Outreach Programs

Material specific outreach programs are implemented to target specific waste materials generated by the residential sector. Because these programs target specific materials they are easier to evaluate than are general outreach programs. Moreover, specific material outreach strategies may be more effective since they do not deluge the resident with numerous different options for reducing waste all at once, but rather focus on a specific strategy for preventing a specific type of waste.

Program Examples

City of Milwaukee, Department of Public Works (DPW): After banning disposal of yard waste, the City of Milwaukee initiated a high profile grass waste reduction program called *"Just Say Mow."* This program encourages residences to leave grass on their lawn, as opposed to bagging it. The City allocated over $200,000 to this program in FY 1991 which covered the cost of a multi-media advertising campaign. Of the total amount spent, roughly $15,000 was spent on developing an television commercial, and $100,000 went toward air time during 1991. Approximately $50,000 was spent on an eight page insert which went into 250,000 newspapers. Another $8,000 was spent on "Yard Fests," which the City sponsored to show residents the benefits of mulching and composting yard waste. The remaining money was spent on developing radio spots. The DPW will allocate another $350,000 to this program in 1993. During the first summer that the program was initiated tonnage discarded was reduced by 10,000 tons, which represented a total reduction of 10%.

Contact: Connie Lindholm, City of Milwaukee Department of Public Works, Milwaukee, Wisconsin. (414) 278-3500.

Seattle Solid Waste Utility: Seattle's Master Composter program started in 1986. This program consists of providing training sessions for volunteers who will commit to providing 40 hours of community outreach in the program. In 1990, Seattle started distributing free composters through an independent contractor at residents request. Residents can also receive a home visit for compost training. Seattle is making a special effort to reach ethnically diverse areas. They did a direct mailing to the 4 zip codes with lowest participation in the program in Spanish, Chinese, and Vietnamese.

Seattle aims to distribute 39,100 backyard composters by 1998, to 25% of the single through 4-plex households in Seattle. The goal of this program is 0.6% waste reduction. Seattle estimates that 70% of the bins distributed will be used, and 70% of all yard waste will be composted. Based on Seattle waste composition data, 260 of the total 560 pounds of yard waste annually generated per household will be composted. They calculated that the cost of administering the program is $68.41/ton, compared with an avoided cost of $86.16/ton, yielding savings of $17.75/ton. One survey of bin recipients performed in May 1991 indicated that 87% said they were in fact using the bins. In 1992, $595,000 was allocated to the backyard composting contract, $287,000 of which was spent on bins (the contractor is responsible for buying the bins). Over two hundred residents are currently weighing all of their food waste for 6 months to help Seattle determine whether to start a food waste composter distribution program.

The City of Seattle has also initiated a Green Cleaning Kit pilot program which attempts to eliminate the need for toxic and hazardous cleaning supplies (this program is also administered by an independent contractor). The City distributed cleaning kits containing baking soda, white vinegar, salt, liquid castile soap, a scrubber, spray bottle, washcloth, and a used diaper (rag). The kits also contained eight recipes for cleaning (using the kit ingredients) printed on a laminated card for use around wet areas. Each kit was packaged in a wooden tote and distributed free of charge at local grocery stores for the pilot program. Kit recipients were required to participate in a phone survey which evaluated the effectiveness of the program. The survey asked participants about their impression of the kit, whether they would continue using the kit for its intended purpose, recommendations for improving the kit, and the estimated dollar value of the kit. Based on survey information the kits will be modified and sold at a subsidized rate to interested residents. One hundred and fifty thousand dollars were allocated to the green cleaning project over a 2 year period, $85,000 of which is to be spent on kits. An initial goal was to make kits available for sale to the public, but the way the Utility is set up, any money received by the Source Reduction Program must go into the general fund, instead of the source reduction budget. (This has also been a problem for potential sale of Use it Again, Seattle! booklets).
Contact: Carl Woestwin, Seattle Solid Waste Utility, 710 Second Avenue, Seattle, Washington 98104. (206) 684-4684.

Central Vermont Solid Waste District: The Central Vermont Solid Waste District has embarked on a direct mail reduction campaign which distributes pre-addressed mail service preference cards to local residents so that residents may remove their names from bulk service and third class mailing lists. During 1990, the District distributed over 2,000 of the cards to residents on town meeting day. No data was

available on the quantity of materials reduced as a result of the program. However, program costs were extremely low as the Mail Preference Services provided the cards.

Contact: Ben Rose, Central Vermont Solid Waste District, 79 Main St., Montpelier, Vermont 05602. (802) 229-1350.

C. Consumer Outreach Programs

Consumer outreach programs at the local level are often developed in cooperation with commercial retailers and usually target waste prevention at the point of consumption (i.e., in the store). These programs are particularly important since the majority of waste generated by residents originates at the retail level, and thus, they represent large centralized sources of residential waste. They also provide the resident with a direct and tangible link between waste generation rate and consumption patterns.

Program Examples

New York City Bureau of Waste Prevention, Reuse and Recycling (BWPRR): New York City has created a *Partnership for Waste Prevention* program that works with retail establishments to develop specific source reduction education materials for consumers. The cost of materials may be shared by DOS and the business/association. For example, DOS and the Chinese American Restaurant Association designed a poster to hang in restaurants requesting that customers only take the condiments, napkins, etc. needed. This effort will soon become a 501 c(3) so that corporations can deduct expenses from their taxes, and so funds can remain separate from the DOS general account.

Contact: Dave Kleckner, Bureau of Waste Prevention, Reuse and Recycling NYCDOS, 44 Beaver St.,New York, New York 10004. (212) 837-8178

Seattle Solid Waste Utility: The Seattle solid waste utility's consumer education program involves education of retail store customers to purchase more responsibly packaged goods. Seattle is currently working with 9 stores, some in ethnic and low income areas. The program has two primary components: 1) store walk through audits and regular follow-up visits to the stores; and, 2) in-store educational materials. Limited surveys of retail establishment customers were performed where the shopping campaign was implemented. Information from these surveys helped improve some of the program components. For example, the shopping campaign had been limited to shelf mounted displays, cashier buttons and

other "passive" outreach. The program was modified to include volunteers who speak to customers, and give tours of stores with quizzes on packaging costs. Since the modification, survey results for the program have been more positive. Roughly $75,000 was allocated to consultant services to carry out this program over a two year period.

Contact: Carl Woestwin, Seattle Solid Waste Utility, 710 Second Avenue, Seattle, Washington 98104. (206) 684-4684.

Olmstead County, Minnesota: Coordinates SMART (Saving Money and Reducing Trash) shopping program in conjunction with the state program. This entails finding willing grocery store owners, training volunteers to set up a table at participating grocery stores, distributing information to shoppers, and conducting exit surveys. This program isn't in full operation yet, but is expected to take 1 day/week over the year, probably more initially, tapering off over time. Once again, the implementation of the state developed SMART shopping campaign in Olmstead reflects the importance and effectiveness of the state in providing technical assistance to local communities. For a more detailed description of this innovative consumer awareness program see Appendix C.

Contact: Jack Stansfield, Olmstead County Public Works Department, 2122 Campus Drive SE, Rochester, MN 55904-4744. (507) 285-8231.

City of Boulder Precycling Campaign:[16] This in-store grocery pilot campaign focused on positive labelling. Nine stores were involved in the pilot in 1990, and one store has continued the program. Program elements include:

- On shelf labels indicating products that are recycled, recyclable or, minimally packaged.
- In store-signs displaying messages such as "Buy in Bulk," etc.
- Employee buttons encouraging customers to "ask me about precycling."
- Precycle information booths offering brochures and "product of the week."
- Letter writing campaigns which included pre-addressed post cards to send to manufacturers.

[16] City of Boulder, Office of Environmental Affairs. 1990. "Precycle, Final Report," Boulder, Colorado.

- Product tallies and consumer surveys to measure shifts in attitudes and purchasing patterns."

Employee training programs were initiated and volunteers were solicited and trained to help maintain the program. A survey of consumers was conducted with special in-store computers which encouraged consumers at busy locations to answer a 60 second survey. Preliminary results indicated that 84% of the respondents were familiar with the program and 74% indicated that it had helped them to reduce packaging waste. In addition exit polls were conducted that indicated a program recognition rate between 41% and 47% in large chain stores. One store with a low level of management involvement did not experience the same success as stores that had active participation by management.

Tracking product sales was more difficult than originally anticipated. A number of external factors influence product sales including: brand loyalty, price or promotions, coupons, shelf location, and other factors. These reasons, in combination with the difficulty of assembling and evaluating large amounts of non-electronic inventory data, made it difficult to evaluate the effectiveness of this program. Data from three stores appeared to indicate a trend toward greater sales of low waste products. Notably, sales of canvas bags increased 700% in participating stores.

Product tracking techniques to evaluate the program are currently being undertaken at the store which has continued the program. Total costs for the 3 month pilot program were $35,075.

The report cited above makes the following recommendations with respect to implementing a precycling campaign.

- Establish goals: determine whether the goal is to reduce solid waste or promote environmental shopping. Taking on both goals at once may be a large undertaking.

- Choose one grocery store or chain as it will permit thorough development of a comprehensive program and prevent volunteers from becoming over extended.

- Use a variety of marketing campaigns including visual, written, and person to person contact to promote the campaign.

- Determine how results will be measured: direct effects of education are hard

to measure, consumer surveys are a good way to gauge shifts in awareness, tracking a few indicator products may also be an effective approach.

- Get the message out beyond the grocery store by using the media, reaching out to local organizations and going to schools.

Contact: City of Boulder Office of Environmental Affairs, P.O. Box 791, Boulder, CO 80306 (303) 441-3090.

VII. LOCAL WASTE EXCHANGES

California Source Reduction Planning Guidelines require that counties consider technical assistance or promotional alternatives (Article 6.2, §18730 (c)).

Local waste exchanges are distinguished from state level exchanges in that they usually involve actual physical exchange of materials, whereas, state programs focus on development of an information network for exchange. Local programs also provide outlets for residential materials in addition to commercial and industrial materials. There are many different types of waste exchanges presently occurring which focus on a variety of different usable materials

Program Examples:

City Harvest:[17] This organization was established in 1982 to collect edible food from commercial and institutional establishments and redistribute it to homeless shelters, day care centers, and senior citizen programs. The program identifies potential sources of food and collects and redistributes the food on a daily basis. City Harvest prevented 2,300 tons of food from entering the waste stream in 1991 and redistributed it to those in need. Total operating budget in 1991 was $1.5 million. Funding sources for the program include individuals, grants, and corporations.

Contact: John Mooney, City Harvest, 159 West 25th Street, New York, New York 10001, (212) 463-0456.

Recycle North, Inc.: Located in Burlington, Vermont, Recycle North is a non-profit organization created in 1991 which receives funding from grants (30% of operating

[17] Based on: Fishbein and Gelb. 1992. *"Making Less Waste: A Planning Guide for Municipalities,"* Inform, New York, New York.

budget), and revenue from the repair and sale of reusable products (70% of operating budget). The total operating budget for Recycle North was $130,000 in 1991. The goals of the program are threefold:

- To provide an outlet for reusable products.
- To provide training services to homeless adults in the "Fix-it Shop"
- To redistribute refurbished products to community organizations.

Recycle North accepts durable products and appliances as well as books, toys, dishes and other miscellaneous reusable products. In addition, the "Fix-it" shop contains an electronic repair shop, an appliance repair shop, and a woodworking repair shop. A total of six employees work in the "fix-it" shop. These employees provide training to homeless individuals in addition to repair services. Residences are encouraged to bring durable goods to the Fix-it shop and are charged a nominal fee for repair services ($25 service call, $20 diagnosis fee, plus $25/hour, most services cost between $30 and $50 per job). Recycle North estimates diversion at roughly 200 tons per year. In addition to training services provided in the Fix-It shop, training is provided on the sales floor as well.

Contact: Ron Krupp, Recycle North, P.O. Box 158, Burlington, Vermont 05402. (802) 658-3143.

ReStore Resources, Inc.: Located in Montpelier, Vermont, The "ReStore," like Recycle North is a non-profit corporation that receives funding from grant sources (40% of operating budget) and revenue from the sale of reusable items (60% of operating budget). Total operating cost is roughly $2,000 per month. The Restore collects materials that can be used in arts and crafts programs in schools. A mail order program is presently the primary point of sale. However, ReStore Resources is beginning to experiment with bringing materials directly to schools in a truck so that teachers can see and buy the materials on-site. In addition, a pilot satellite drop-off program is being tested to evaluate the cost-effectiveness of dropping materials in central locations.

In addition to these services, the Restore has received a $31,000 grant to test a program to recapture and redistribute assistive equipment for physically impaired individuals. The program will identify source of such equipment, collect it, deliver it to a local university for repair if necessary, and redistribute the equipment to those in need.

Contact: Connie Leach, ReStore Resources, Inc., P.O. Box 885, Montpelier, Vermont 05601. (802) 229-1930

New York City Bureau of Waste Prevention, Reuse and Recycling (BWPRR) and Department of Cultural Affairs: The BWPRR and the Department of Cultural Affairs Co-fund the *"Materials for the Arts"* program. This program collects materials including paint, furniture beads, paper, buttons, etc. from over 1,000 businesses and individuals. These materials are picked up at no cost and warehoused. The materials are then distributed to schools and other organizations. Approximately 32-35 tons per month of materials are collected in this program (This section is based on Inform, *"Making Less Waste: A Planning Guide for Municipalities,"* 1992).

Contact: Susan Glass, Materials for the Arts, 410 West 16th Street, New York, New York 10001. (212) 255-5924.

Montgomery County, Maryland: Local government officials have worked with The Loading Dock to develop the *Don't Dump Donate* (DDD) program for contractors. The Loading Dock is a non-profit group in Baltimore which makes salvaged construction materials available to other non-profit groups. The DDD program operates a county owned site with a truck scale one Saturday per month for contractors that want to donate materials. The Loading Dock transports material to their warehouse where it is cataloged. Non-profit organizations can come to the warehouse to buy low cost materials. The program may be expanded to include a weekday drop-off. They recently added a mattress collection component to the program. Used mattresses can also be brought to the site, and a mattress reconditioning company collects them at the end of the day.

The *"Movement and Acquisition of Gifts in Kind (MAGIK)"* program performs another waste exchange function. MAGIK collects discarded items, such as old furniture, bedding and other hotel supplies, medical office equipment and distribute these items to those in need. The program received an EPA grant to expand and establish a warehouse. A manual is presently being developed which will describe program operations.

Contact: Paul Kaldjian, Division of Solid Waste Management, 101 Monroe Street, Rockville, Maryland 20850. (301) 217-2380

True Color Home Decorating, Inc.:[18] This company, located in Montpelier, Vermont, accepts latex paint from donators, remixes it and sells it at $5/gallon, roughly 1/3 less than the cost of a new can of paint. The program was developed in conjunction with the Central Vermont Solid Waste District in early 1990. Between 1990 and mid 1991 approximately 200 gallons of paint have been reclaimed (this

[18] Fishbein and Gelb. 1992. Ibid.

section is based on Inform, *"Making Less Waste: A Planning Guide for Municipalities,"* 1992).

Contact: Bill Mcquiggan, 114 River Street, Montpelier, Vermont 05602, (802) 223-1616

VII. LOCAL IMPLEMENTATION ASSISTANCE PROGRAMS

One interesting phenomenon occurring principally in the Midwest is local implementation assistance programs operated by non-profit organizations. These include Central State's "Model Community Program" in Illinois, and the Minnesota Project's "Waste Prevention Leadership Project." Such programs, designed primarily to reach small rural communities, represent a low cost, comprehensive alternative for many local governments in the Midwest. Other resources used by local governments to assist in implementation include extension services and universities.

Program Examples

Cornell Waste Management Institute: The Waste Management Institute is in the process of developing a waste prevention tool kit for municipalities. The tool kit will include 160-170 pages of information, along with camera ready copies of educational materials. Expected release date for the document is 11/92.

Contact: Ellen Harrison, Cornell Waste Management Institute, Cornell University, New York (607) 255-8576

Model Community Program, Central States Education Center: This comprehensive source reduction program focuses primarily on implementing voluntary source reduction activities in rural communities. Central States is a non-profit organization that has developed the transferable program. During the first three years, Central States provided technical assistance, guidance, brochures, and general information to communities for start-up and implementation. The program is designed to be run by volunteers. The first phase of the program entails development of a steering committee to coordinate activities. This committee is typically composed of public officials, solid waste haulers, citizens advocacy groups, and commercial and industrial representatives.

The next phase entails getting commercial, industrial, public organization, and civic groups interested in the program. Once the interest is developed, the idea is that

specific companies and organizations will have an incentive to become community "models." In order to become a model, a certification process is required which allows the community to develop standards within the model community framework. Both general, and specific standards have been developed by the program. General standards for certification include:

- Promoting and practicing waste reduction at the source and recycling to the greatest extent feasible.
- Evaluating waste behavior and role in the waste stream.
- Increasing the use of recycled materials and decreasing the use of toxic materials.
- Cooperation with the Model Community Committee.

Specific standards have also been developed for: garbage haulers, copy shops, supermarkets, newspapers, restaurants, governments, school/religious/civic organizations, and households. These specific standards and programs reflect the general certification standards identified above.

The Model Community program has been implemented in eight cities and counties throughout Illinois. Within the model communities, there are over 100 certified model businesses and civic organizations statewide. In order to become model communities, a community must first apply for certification and agree to meet the general standards identified above. The first year of certification costs roughly $17,000 which covers the cost of training and materials, and technical assistance provided by Central States. The $17,00 also covers the cost of a quarter time locally based coordinator. The second and third year of the program costs roughly $7,000 which covers the cost of a locally based 1/4 time employee to coordinate program activities and the cost of program assistance from Central States.

Contact: John Thompson, Central States Education Center, 809 South 5th Street, Champaign-Urbana, Illinois 61820. (217) 344-2371.

Waste Prevention Leadership Program: The Minnesota Project is a non-profit organization that focuses on resource conservation issues in rural Minnesota counties. The Waste Prevention Leadership Project, administered by the Minnesota Project, focusses on training local interns to provide waste prevention related services to rural communities. Objectives of the Minnesota project are provided below.

- To prevent waste in rural communities through development and implementation of successful projects in participating communities.

- To increase the waste prevention knowledge, skills and leadership capabilities of rural community interns through formal and supervised experiential learning activities during a ten month period.

- To increase the capacity for sound waste prevention in rural communities by providing training and financial support to community residents working on community based waste prevention projects.

- To increase the ability of the Minnesota Project and the State of Minnesota to support waste prevention activities in rural Minnesota by establishing a network of community based leaders in the state who could themselves act as trainers for other interns.

- To assist in the development of a network of waste prevention advocates in the state.

- To compile a set of case studies documenting completed waste prevention projects in participating communities.

- To develop a training series addressing both technical and community development aspects of waste prevention which can be used by other communities.

- To disseminate case studies in the State of Minnesota and through national networks of which the Minnesota Project is a part.

Community based interns are selected and linked with a community based mentor who supervises the intern's activities. The intern receives a stipend ($350/month) and training during the ten month period in which the specific waste prevention project is initiated.

The project represents a collaborative effort involving six counties. The Minnesota Project's Waste Prevention Leadership program is partially funded through a $24,500 grant provided by the Office of Waste Management, and funds provided by counties and solid waste districts throughout the State. The total operating budget for the project is $36,000. Final completion of the project and compilation of all intern reports is expected in October 1993.

Contact: Del Edwards, The Minnesota Project, 1885 University Avenues, Suite 315, St. Paul, Minnesota, 55104. (612) 645-6159

APPENDIX C SURVEY OF COMPREHENSIVE LOCAL LEVEL PROGRAMS

I. INTRODUCTION

The programs described in Appendix B reflect disparate efforts, or program components which are developed by the local level. In this Appendix, we identify those localities which appear to have well defined, comprehensive waste prevention programs in place. These localities include: Seattle, Washington, King County, Washington, Olmstead County, Minnesota, New York City, New York, and Montgomery County, Maryland.

Of all local programs identified, only Olmstead County, Minnesota appears to have a comprehensive program in place which is reflective of the State's local assistance programs. Programs implemented in local government and local retail establishments are a direct reflection of case studies originally developed at the state level. Thus, Minnesota's emphasis on case studies which illustrate direct cost savings resulting from the implementation of waste prevention programs appears to be influencing the development of programs at the local level.

Seattle and King County have both devoted a great deal of local resources to program development as the cost of disposal has increased sharply in these regions over the past 10 years. These areas have received only limited guidance and assistance from the State level. However, Washington State is attempting to bolster its local assistance program described in Appendix D by drawing on the experience of Seattle which was one of the front runners in developing comprehensive source reduction programs at the local level. Notable about both King County and Seattle's program is their reliance on contractors to conduct the on the ground work associated with program implementation.

New York City is just beginning to implement its waste prevention program with the recent development of a Citywide integrated waste management plan. Again, New York has devoted a great deal of local resources to its program based on sharply increasing disposal costs. Due to its size, New York also is focussing waste prevention activities on state and federal legislative efforts as well as programmatic development. In an effort to emphasize the importance of its waste prevention activities, the City has recently changed the name its recycling and planning division to the Bureau of Waste Prevention, Reuse and Recycling.

Montgomery County's source reduction program was developed with the assistance of a U.S. Environmental Protection Agency official who is on a 15 month assignment in the County to develop the program.

All the comprehensive programs identified appear to be occurring in relatively large

metropolitan areas that have resources to dedicate to waste prevention activities. In addition, all of these metropolitan areas have experienced large increases in costs associated with collection processing and disposal over the past 5 to 10 years giving them an additional impetus to develop comprehensive waste prevention programs. Rural areas, particularly in the Midwest, are increasingly looking for implementation assistance from organizations such as the Model Community Program and the Minnesota Project (see Appendix B).

II. SEATTLE, WASHINGTON

Seattle, a city of 512,000 people, has been a recognized leader in recycling and waste reduction for many years. In 1989, Seattle adopted a solid waste management plan with a more ambitious waste reduction and recycling goal than that of the state. Seattle's goal is to recycle or divert 60% of the solid waste stream by the year 1998. The Seattle Solid Waste Utility is responsible for residential waste only and all source reduction activities are primarily targeted at the residential sector.

The overall source reduction program goal is 2.5% reduction by the year 1998, of which 0.6% is attributed to backyard composting, and 1.9% is attributed to all other programs. There are no other specific component by component goals. Apart from estimating organic waste diverted through the composting program, Seattle has not tried to quantify their program results. There are no methods for ensuring compliance on programs other that QBUF, as all efforts are voluntary. There has been an attempt to track resident awareness of waste reduction through the Solid Waste Utility's annual customer surveys; but results are only qualitative.

The program is funded in part through solid waste disposal fees set by the Solid Waste Utility. Yearly budgets must be reviewed and approved by City Council and Office of Management and Budget. The State provides some financial assistance for source reduction efforts. The overall program budget, not including the coordinators salary for the past two years was $839,000 in 1991, and $871,000 in 1992. This budget is spent almost totally on consultant contracts. Educational materials related to each project are designed by the consultant and costs comes out of the respective budget.

Carl Woestwin, the current source reduction coordinator, estimates spending 15% of his time on program planning and 55% on contracts management. The remainder of his time is spent on providing information to parties outside Seattle, external planning meetings, outreach and staff meetings.

A. ORDINANCES

1. Quantity based user fees

Seattle was one of the first large cities to implement quantity based user fees (QBUF) in 1981. Between 1988 and 1989 alone Seattle realized a 24% reduction in the quantity of waste disposed (No data was available on the effects of Seattle's user fee system on waste generation rates).

Seattle established its rate structure based on a service level determined by the number of cans that the resident subscribes for from the City. The monthly rates which Seattle established for garbage can services are shown below. These rates are standard rates for curbside service. The Solid Waste Utility also has a subsidized rate structure for families with limited incomes, senior citizens, and people with disabilities.

Seattle Solid Waste Solid Waste Utility Monthly Service Rates

Service Level	Can Size (gallons)	Monthly Rate
Mini Can	19	$11.50
One Can	32	$14.98
Two Cans	60	$29.96
Three Cans	90	$44.94
Additional Cans	32	$14.98
Yard Waste Collection	NA	$ 3.00

Seattle residents may select the level of service they desire on a mailer that announces new garbage rates. Each mailer contains information indicating how residents can reduce their garbage bills by employing specific waste prevention strategies. The mailer also provides a description of distribution of costs covered by the rates. These data are provided below.

Seattle Solid Waste Solid Waste Utility Rate Structure Cost Distribution

Services Provided	% Monthly Bill
Garbage Disposal	13%
Garbage Transfer/Hauling	8%
Garbage Collection	20%
Recycling Collection and other Compost and Reduction Programs	15%
Taxes/Administration	8%
Low Income Rate Assistance	3%
Depreciation	2%
Landfill Closure	12%
Billing/Customer Service	16%
Litter/Hazardous Waste	3%

Seattle received an EPA grant to investigate actual weight based systems wherein bar coded garbage cans would be weighed by a crane scale mounted to a collection vehicle. Weight based systems are particularly desirable as they are more accurate in determining the actual quantity of materials disposed and thus they are even more equitable than volume based systems. One possible system would use a bar code scanner to feed the weight data into a computer. Residents would be charged directly based on the weight of materials disposed. This system will not be implemented immediately due to current contractual obligations.

2. Source Separation of Yard Waste - Backyard Composting

In October 1988, the Seattle City Council mandated that yard waste be separated from garbage. Seattle provides curbside collection services (fees discussed above), and an extensive backyard composting program.

B. GRANTS/FINANCIAL ASSISTANCE PROGRAMS

Environmental Allowance Program is an annual grants program that solicits innovative source reduction proposals from the community. In 1991, eight proposals totalling $80,000 were funded. These grants included:

- Nurses association educational project on adult incontinence products;
- Elimination of disposable products from a childhood education center;

- Purchase of reusable plastic produce boxes for use in a food cooperative;
- Worm bin distribution and education program for elementary schools;
- Series of day-long open houses at two private homes where extensive source reduction was implemented;
- Organization of quarterly rummage sales for ethnic neighborhoods.

In 1992, $50,000 was allocated to the grants program. Nine proposals have been accepted, ranging from $650 to $12,000.

C. PRIVATE SECTOR ASSISTANCE PROGRAMS

The **Tame the Paper Tiger** program includes distribution of pamphlets and posters to office areas describing ways to cut down on office paper use, and promoting use of recycled paper. Funds for printing come out of the Solid Waste Utility's source reduction internal promotion budget, which totaled $51,000 in 1992.

D. RESIDENTIAL PROGRAM IMPLEMENTATION

1. General Residential Outreach Programs

Use it Again, Seattle! is a directory of 400 rental, repair and used goods services that is distributed through libraries, businesses and community service locations. The directory is currently in its second edition. At least 28,000 copies have been distributed. Funds for these booklets have come from the internal promotion and consultant budgets.

2. Material Specific Outreach Programs

Seattle contracts out most components of the source reduction program. The staff source reduction coordinator oversees the program, working with the consultants on each component.

Backyard composting program: Seattle started distributing information as early as 1978, but the Master Composter program started in 1986. This program consists of providing intensive training sessions for volunteers and obtaining a commitment from them to provide 40 hours of community outreach in return. Recruiting minority master composters has been a priority in recent years. The contractor also operates a compost hotline and maintains five demonstration sites around the city. In 1990 Seattle started distributing free composters and providing in-home training to residents requesting it. Seattle is making a special effort to reach ethnically diverse areas: the Solid Waste Utility did a direct mailing to the 4 zip codes with lowest participation in the program with critical information in Spanish, Chinese, and Vietnamese and they perform an annual survey to assess participant's level of satisfaction with the program.

Seattle aims to distribute 39,100 backyard composters by 1998, reaching an estimated 25% of the single family through 4-plex households in Seattle. The goal of this program is 0.6% waste reduction. Seattle estimates that 70% of the bins distributed will be used, and 70% of all yard waste will be composted. Based on Seattle waste composition data, 260 of the total 560 pounds of yard waste annually generated per household will be composted. The estimated cost of administering the program is $68.41/ton, compared with an avoided cost of $86.16/ton, yielding savings of $17.75/ton. One survey of bin recipients performed in May 1991 indicated that 87% said they were in fact using the bins.

In 1992 $595,000 was allocated to the backyard composting contract, $287,000 of which was spent on bins (the consultant is responsible for buying the bins). Of this contract, $17,000 was dedicated to a pilot study on food waste composting. Bins and scales were provided for 250 residents who are currently weighing all of their food waste for 6 months. The results of this study will help the Solid Waste Utility determine whether to start a food waste composter distribution program.

Green cleaning program: A consultant was hired to produce and distribute non-toxic cleaning kits. A wood tote containing baking soda, vinegar, salt, castile soap, a spray bottle, a scrubber and a cotton rag is now being distributed. 300 of the initial users of the green cleaning kits were surveyed for their feedback on the program. In 1991 and 1992, $150,000 was allocated to the green cleaning project, $85,000 of which is to be spent on kits. As part of the 1992 contract, kits will be sold to the public for $1 each. Funding for this project was provided by the Local Hazardous Waste Management Plan, a cooperative arrangement of local government entities responsible for wastewater management, to reduce toxic loading in that system.

Consumer Education Materials: Brochures on precycling, diaper options, and other topics are made available to the public and placed in appropriate locations, such as doctors offices for the diapering brochure. Funds for these brochures come from the internal promotion budget.

3. Consumer Outreach Programs

Retail based waste reduction program: This "smart shopping" program involves education of retail store customers on purchasing more responsibly packaged goods. Seattle is currently working with 9 stores, some in ethnic and low income areas. Limited surveys of retail establishment customers were performed where the smart shopping campaign was implemented. Information from these surveys helped improve some of the program components. For example, the smart shopping campaign had been limited to shelf mounted displays, cashier buttons and other "passive" outreach. The program was changed in 1992 to include volunteers who speak to customers, give tours of stores and quizzes on packaging costs.

Roughly $75,000 was allocated to consultant services to carry out this program in both 1991 and 1992.

E. PROGRAM COORDINATION ACTIVITIES

Seattle works independently from King County and the State. King County concentrates on municipalities outside of Seattle. The Seattle coordinator has reviewed county waste reduction grants program and county staff does the same for Seattle's grant program. The State has a separate smart shopping program with which Seattle tries to coordinate. Some funding is available from the State for production and distribution of materials. In 1991 the State provided $34,000.

F. OTHER PROGRAM INFORMATION

In discussing barriers to source reduction implementation, Carl Woestwin feels there may be some obstacles to overcome in working with businesses, especially if there is co-promotion of goods or services. Another problem is the difficulty in quantifying program results.

Contact: Carl Woestwin, Seattle Solid Waste Utility, 505 Dexter Horton Building, 710 Second Ave., Seattle, WA 98104. (206) 684-4684

III. KING COUNTY, WASHINGTON

The King County Waste Reduction and Recycling Department includes 15 staff people for a jurisdiction of approximately 1 million residents. King County has a population of 1.5 million, but Seattle, with a population of 500,000 takes responsibility for its own residents. Waste reduction and recycling activities are funded from a common budget, which is financed by a surcharge on tipping fees.

A. ORDINANCES

Quantity based user fees

King County passed an ordinance in August 1991 that establishes a QBUF system for all residences within the County.

B. GRANTS/FINANCIAL ASSISTANCE PROGRAMS

Dollars for Data provides financial assistance to the commercial sector for source reduction projects that quantify results. The goal of this program is to produce case studies with hard data to prove that waste reduction efforts save money as well as materials. Some examples of projects include:

- Installation of an electronic mail and bulletin system to reduce paper and establishment of a "Resource Recovery Closet" for used items in a high school;

- Replacement of disposable plastic with reusable nylon bags for storage of clothing at a distribution center;

- Establishment of bulk refilling station of professional hair care products;

- Worm composting for food waste at a food bank.

The first year of the program distributed $100,000 in grants. This year, grants are limited to $10,000 each as the total budget is only $60-$70,000.

C. PRIVATE SECTOR ASSISTANCE PROGRAMS

King County has three full time staff people providing technical assistance to businesses on waste reduction and recycling issues. These staff perform site visits as well as telephone consultations and provide written information on these issues.

D. RESIDENTIAL PROGRAMS

1. General Residential Outreach Programs

The King County Home Waste Guide was produced to give residents tips on waste reduction and non-toxic substitutes in the home.

2. Material Specific Outreach Programs

Backyard Composting: The King County program includes demonstration sites, subsidization of three types of composters and free training through the Master Recycler/Composter Program. Volunteers who receive training through this program agree to provide 40 hours of community service in the form of composting workshops or other waste reduction outreach activities. The consultant who manages this contract is responsible for providing 3-4 volunteer training sessions per year, oversight of volunteers in their subsequent training and establishment of a new demonstration site.

This program is broader than most master composter programs in that it attempts to disseminate other information on recycling and source reduction through the volunteers. Therefore, volunteer training includes information on home composting, recycling and source reduction issues, such as smart shopping. The consultant works with the County staff to develop ideas for information dissemination. For example, this year volunteers may staff booths at malls during the Christmas

season to promote smart shopping, resource efficient gift wrapping, etc. (There is currently a waiting list to get into the program). The consultant budget for the program was $262,000 in 1992, and $280,000 in 1993. Funds dedicated to subsidizing bins totalled $300,000 in 1992.

Contact: Susan Gulick, Waste Reduction and Recycling, King County Solid Waste Division, 450 King County Administration Building, 500 4th Avenue, Seattle, WA 98104. (206) 296-8458.

IV. OLMSTEAD COUNTY, MINNESOTA

Olmstead County (pop. 108,000) is working toward the Minnesota goal of 25% waste reduction by 1994. The county has three full time staff in their Waste Abatement Department; recycling, hazardous waste and source reduction coordinators each have their areas of specialization, but work on some projects together. State legislation mandated quantity based user fees in 1990. The county does not have any specific source reduction goals, but the source reduction coordinator tries to quantify results of his waste reduction efforts. The main focus of his work to date has been the county office buildings (28 buildings with over 1000 employees).

The County operates all waste management facilities but waste and recyclables is collected by the private sector. The county performs waste sorts at the county incinerator at least once per year and often quarterly. Sorts are performed primarily to monitor recycling compliance, but also provides useful information for source reduction program. The County waste abatement program, including recycling, hazardous waste abatement and source reduction is funded through a waste abatement surcharge on tip fees, which is 11% in the county ($73.80/ton with a $8.85/ton surcharge). Their total 1992 budget was $285,000, approximately 40% of which was estimated to be salaries and benefits.

In 1991, including a $100,000 state equipment grant, the breakdown of the budget was:

$115,357 for hazardous waste programs
$248,751 for composting (included equipment purchase)
$49,805 for source reduction
$136,060 for recycling

Budget priorities must be set every year for the waste abatement program. This coming year, a hazardous waste storage facility is a priority. In the past, more of the budget has been directed toward recycling activities although that will shift toward waste reduction in the future.

The coordinator says that everyone has been very supportive of his work to date. The business community is very satisfied with the award program. He has seen no barriers to continuing this work other than time. The coordinator would like to see more development of educational materials for school kids and manuals for commercial enterprises.

A. LOCAL GOVERNMENT IMPLEMENTATION PROGRAMS

1. Equipment air filter reuse program

A local company cleans air filters, prolonging their life and reducing the number of new ones needed. The Public Works and Highway departments have been targeted for implementation of the filter reuse program. They have found it cost effective to have air filters cleaned for heavy equipment only, and are currently not doing cars and light vehicles. Results: Purchasing only 25% of filters compared to previous years. Reduced garbage disposal by 427 lbs in one year. The coordinator estimates spending 2 months at 1/4 time to implement program. Information to relevant businesses is being provided.

2. Refurbishing of computer cartridges and reinking/restuffing printer ribbons

Started in one county department and trying to expand to all others. The cost of refurbishing is 50-60% of purchasing new ones. The coordinator spent 1 day per week for 2 months on this project.

3. Reduction of junk mail

County offices are putting all junk mail in a box and weighing it after one week. A volunteer takes responsibility for writing to the sender requesting to be removed from the list. The program has only been operating for four months, but they have found reductions varying from 18-25 lb/week to 1 lb/week. The program is voluntary, but the coordinator hopes that all offices will eventually adopt it. The coordinator spent 1 day/week for 2-3 months to start program, but since program initiation time requirements have been cut in half.

4. Office supply swap

Offices are encouraged to keep things they don't have use for in a dedicated place. When enough is accumulated, they either circulate a listing of the items to other

departments or have a "come and get it" day. One office eliminated 8 out of 9 boxes of supplies this way.

5. "Trash Busters"

A group of county employees meets one hour per month to brainstorm on waste reduction ideas. The employees are payed for their time on this committee. Minimal time was spent on this - initial announcement in county newsletter plus meeting time.

6. Hazardous waste reduction and substitution

The Source Reduction and Hazardous Waste Coordinators assist county offices with very small quantity generator (VSQG) registration every year. This process gives them opportunities to discuss reduction possibilities and distribute information on non-toxic alternatives. This program took 2 people 1 day/week for 3 months to start, but next year's registration should take half the time. The coordinator also helps businesses with VSQG registration and provides information on substitutes.

7. Procurement

The coordinator works with the purchasing department to reduce waste generation in product packaging and purchase reusable instead of disposable items. Example: specifications of photocopier contract were written into the invitation to bid that all bidders must take back packaging and toner cartridges. The coordinator is now spending 1-1.5 days per week on this program.

8. Newsletter column

The coordinator publicizes success stories in his own column in a county employees newsletter that is mailed to employee homes.

B. AWARDS PROGRAMS

Olmstead County holds periodic award ceremonies for outstanding source reduction achievement in the commercial sector. The coordinator spends 1/2 day per month collecting information and setting up the ceremony. County Commissioners have commended the coordinator on this program and would like to have one for county employees.

C. RESIDENTIAL PROGRAM IMPLEMENTATION

1. General Outreach

As a general outreach strategy, Olmstead County sponsors resident education forums on source reduction covering topics of general interest to homeowners and small business people.

2. Consumer Outreach

Olmstead County coordinates a SMART shopping program in conjunction with the state program. This entails finding willing grocery store owners, training volunteers to set up the table at participating grocery stores, distributing information to shoppers, and conducting exit surveys. This program is expected to take an average of 1 day per week over the year, with more work required for implementation.

D. WASTE EXCHANGE

Olmstead County started a county waste exchange which is open to businesses and residents. It is publicized through all the local media. One success was matching a generator of packing peanuts with a user. The user in question now purchases only 10% of his original quantity. There have been successes with the latex paint exchange, especially with non-profit groups who can't afford new paint. The coordinator spends 1 day per month on this program.

E. PROGRAM COORDINATION ACTIVITIES

The County develops their own source reduction program with some technical assistance from the State. The coordinator participates in the Minnesota Source Reduction network and the Southeast Minnesota Recyclers Exchange by attending meetings.

Contact: Jack Stansfield, Source Reduction Coordinator, Public Works Department, 2122 Campus Drive SE, Rochester, MN 55904-4744. (507) 285-8231.

V. NEW YORK CITY, NEW YORK

NYC DOS hired a source reduction coordinator within the Bureau of Recycling in early 1990. The coordinator was to focus on policy development and legislative issues. New York City is unique in that it makes up such a large percentage of the state's population that it almost functions like a state.

There has only been one full time coordinator with a summer intern and occasional other intern but other staff have been involved in various projects. The focus of the Bureau's work will be shifting from recycling toward waste reduction, hence the recent name change to Bureau of Waste Prevention, Reuse and Recycling. There will soon be four staff people working on waste prevention, which includes a household hazardous waste program, a battery collection program, and legislative development.

The Bureau has various units including waste prevention, market development, public education, and outreach. These units will perform tasks on recycling

projects as well as source reduction projects.

The NYC DOS does not collect commercial waste but is initiating several commercial waste reduction programs.

A. ORDINANCES

1. Quantity Based User Fees

The Bureau has been considering establishing a commercial zone of recycling where QBUFs would be implemented. This program would be coordinated with the Department of Consumer Affairs to provide businesses with access to a more competitive bidding process for waste management services than what currently occurs. DOS would focus their efforts on promoting waste reduction and recycling to participating businesses.

B. GOVERNMENT PROGRAM IMPLEMENTATION

The Bureau is working with the Department of Administrative Services to develop waste reduction oriented procurement guidelines. Because recycled content guidelines are mandatory, they are getting first priority, but there is also progress on waste reduction.

C. PRIVATE SECTOR ASSISTANCE PROGRAMS

1. Waste Audits and Technical Assistance

The Bureau has applied for a NYS Department of Economic Development grant with two environmental groups to provide waste prevention audits and technical assistance to businesses in NYC.

D. RESIDENTIAL PROGRAM IMPLEMENTATION

1. General Outreach

A NYC Waste Reduction Handbook was produced and 65,000 copies were distributed. This booklet includes general tips for residents on source reduction activities in the home and through shopping.

Although a well defined program has not yet been developed, BWPRR is researching outreach to minority and low income groups within the City. The Bureau will try to reach immigrant groups that already have sensitivity on waste reduction issues. They will try to use existing vehicles, such as infant care or housing programs, to transmit information.

2. Material Specific Outreach Programs

In the spring of 1991, BWPRR started a community garden home composting pilot project that serviced over 100 households. Due to the demographics of NYC, community garden composting was stressed. The pilot promoted small scale composting systems that handle food waste and demonstration systems that can be used collectively.

In the fall of 1991, an intensive recycling zone was established in two Brooklyn neighborhoods. Waste reduction efforts were integral to this project. A neighborhood specific reuse guide was developed that listed local repair businesses and establishments that receive and distribute second hand goods. The guide was very well received by the community although there was no attempt to measure increased use of these resources. BWPRR is planning to produce a similar directory for each borough in the next year. A waste prevention campaign was coordinated with small retailers to encourage customers to bring their own bags. Community composting and worm bins were actively promoted, although the response was not overwhelmingly positive.

As a result of this project, the Bureau is now working with the phone company to print the reuse guide as "green pages" within the phone book.

3. Consumer Outreach Programs

The Bureau has developed a Partnership for Waste Prevention program that develops business specific waste reduction education materials for the consumer. The cost of materials may be shared by DOS and the business or association. For example, DOS and the Chinese American Restaurant Association designed a poster to hang in restaurants requesting that customers only take the condiments, napkins and utensils needed. The Partnership will soon become a 501 c(3) so that corporations can deduct expenses from their taxes, and funds can remain separate from the DOS general account.

E. WASTE EXCHANGES

1. City Harvest[19]

This organization was established in 1982 to collect edible food from commercial and institutional establishments and redistribute it to homeless shelters, day care centers, and senior citizen programs. The program identifies potential sources of food and collects and redistributes the food on a daily basis. City Harvest

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[19] Fishbein and Gelb. 1992. "Making Less Waste: A Planning Guide for Municipalities," Inform, New York, New York.

prevented 2,300 tons of food from entering the waste stream in 1991 and redistributed it to those in need. Total operating budget in 1991 was $1.5 million. Funding sources for the program include individual and corporate donations and grants.

2. Materials for the Arts[20]

The BWPRR and the Department of Cultural Affairs Co-fund the *"Materials for the Arts"* program. This program collects materials including paint, furniture, beads, paper, buttons, etc. from over 1,000 businesses and individuals. These materials are picked up at no cost and warehoused. The materials are then distributed to schools and other organizations. Approximately 32-35 tons per month of materials are collected in this program.

F. OTHER PROGRAM INFORMATION

Administrative framework: BWPRR is autonomous in that they receive no direction from the State. Staff receive input and guidance from the NYC Recycling Advisory Board at their monthly meetings, but do not answer to them. BWPRR staff participate on CONEG source reduction task force, and the NYS Legislative Commission on Solid Waste. DOS has two full time lobbyists, one in Washington DC and one in Albany, NY who emphasize waste prevention.

Funding methods: All money comes through general fund (from taxes). Each Bureau is allocated a budget, and the Assistant commissioner determines how that budget is allocated within the bureau.

Contact: Dave Kleckner, Manager of Waste Prevention and Related Projects, Bureau of Waste Prevention, Reuse and Recycling, NYC DOS, 44 Beaver St., New York, New York 10004, (212) 837-8178.

VI. MONTGOMERY COUNTY, MARYLAND

Montgomery County has a population of 750,000. Maryland has a 20% recycling goal by the year 1992 for municipal waste, and by 1994 for state agencies. Until now, source reduction has been the top of the stated waste management hierarchy, but had minimal implementation. The county does not have a source reduction coordinator. Paul Kaldjian is an EPA employee on 15 month assignment (starting January 1992) to the Montgomery County Division of Solid Waste Management to develop a source reduction program. His task is to coordinate SWM staff in on-going source reduction activities and start some of his own initiatives.

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[20] Fishbein and Gelb. 1992. Ibid.

A. ORDINANCES

Quantity Based User Fees

Montgomery County is currently exploring the applicability of variable rate structure for garbage collection within the county.

B. LOCAL GOVERNMENT IMPLEMENTATION PROGRAMS

Paul Kaldjian is working on a source reduction policy for the County. He is working with the county offices and schools to determine reduction opportunities. He attends meetings of the Recycling Oversight Committee that includes members of County departments, such as Transportation and School Departments and promotes source reduction initiatives. He tries to encourage committee members to develop their own ideas, and to take ownership of them, but feels that the County may have to set reduction goals and perform audits to achieve good results.

C. PRIVATE SECTOR ASSISTANCE PROGRAMS

County staff had already started working on a waste audit booklet for businesses. Although the focus of the booklet had been to identify recycling opportunities, Paul Kaldjian is encouraging a source reduction focus.

D. RESIDENTIAL PROGRAM IMPLEMENTATION

Material Specific Outreach

Montgomery County has developed a brochure on non-toxic alternatives called "Clean ways to do dirty jobs."

The County is working with the County Extension Service to expand the backyard composting program. County Extension Service has a master composter program already to provide educational workshops to residents. The county is now considering subsidizing backyard composting bins.

E. LOCAL WASTE EXCHANGES

1. Don't Dump Donate

Paul Kaldjian has worked with The Loading Dock to develop the Don't Dump Donate program for contractors. The Loading Dock is a non-profit group in Baltimore who makes available salvaged construction materials to other non-profit groups. The DDD program opens a county owned site with a truck scale one Saturday per month to contractors that want to donate materials. The Loading Dock transports material to their warehouse where it is catalogued. Non-profits can

come to the warehouse to buy low cost materials. The County may expand the program to include a weekday drop-off. They recently added a mattress collection component to the program. Used mattresses can also be brought to the site, and a mattress reconditioning company collects them at the end of the day.

2. Movement and Acquisition of Gifts in Kind (MAGIK)

This program performs another waste exchange function. MAGIK arranged matches of discarded items, such as old furniture, bedding and other hotel supplies, medical office equipment to those in need. With County assistance, MAGIK secured an EPA grant to expand the program and establish a warehouse.

3. Paint Mixing/Exchange

Montgomery County will soon establish a paint mixing/exchange station at their permanent household hazardous waste collection station.

F. PROGRAM COORDINATION ACTIVITIES

The state of Maryland does not count reduction toward recycling goals. Waste reduction skews calculation of recycling goals in a way that discourages such efforts. Reduction of the total waste amount, or "denominator" of the fraction, making the percentage of material recycled appear higher. This is seen as "cheating" and therefore discouraged by the state. Paul Kaldjian is working with other counties to change the state's system of counting so that source reduction efforts will be rewarded rather than penalized.

G. OTHER PROGRAM INFORMATION

Montgomery County's source reduction program does not have any dedicated budget. All expenses are payed through the recycling department, whose funds come from a surcharge on tipping fees. Tonnage has been decreasing due to the recession. The county controls the landfill, transfer station and MRF, but has no flow control. The county arranges collection services for garbage and recyclables for part of the county and the other part is handled through private haulers.

Contact: Paul Kaldjian, Division of Solid Waste Management, 101 Monroe St. - 6th floor, Rockville, MD 20850. (301) 217-2380.

APPENDIX D SURVEY OF COMPREHENSIVE STATE WASTE PREVENTION PROGRAMS

I. MINNESOTA SOURCE REDUCTION EFFORTS

A. BACKGROUND INFORMATION

The State of Minnesota has one of the most well defined and comprehensive dedicated source reduction programs in the country. There are at least three separate state level entities that influence source reduction activities in the State. These include:

The Legislative Commission on Waste Management (LCWM): The State's source reduction activities are influenced by policy directions established by the Minnesota Legislative Commission on Waste Management. The Legislative Commission oversees activities carried out by the Office of Waste Management (see below) and makes recommendations on solid waste legislation to various legislative environmental committees.

The Office of Solid Waste Management (OWM)--The OWM oversees all state level solid waste financial and technical assistance, education and planning activities. Source Reduction programs are actively promoted by the OWM which has played a crucial role in coordinating efforts by all levels of state and local governments and the private sector. OWM is presently attempting to establish a 10% source reduction goal for the State. Two staff positions have been created to administer grants and technical assistance programs (see below). Roughly $200 thousand is budgeted for these positions and activities (excluding grant monies, and development of the SMART shoppers program, see below). Additional staff from the OWM's Waste Education Program have also played a role in developing a statewide consumer outreach campaign (SMART, described below).

The Department of Administration, Resource Recovery Office (RRO)--The RRO provides technical assistance to State agencies to assure that the State's "Priorities for Environmental Materials Management" are implemented. The Priorities require

all state agencies to develop resource conservation options for reuse and waste reduction in the acquisition, use, maintenance, and discard of materials (see below).

B. KEY LEGISLATIVE AND REGULATORY COMPONENTS

In 1989, legislation developed by the Governor's Select Committee on Recycling and the Environment (SCORE) was enacted as an amendment to Minnesota's Waste Management Act. The SCORE legislation extended a 6.5% sales tax on

garbage collection and disposal services. Funds generated by the SCORE legislation are allocated to the General Fund. Roughly $20 million in revenues was generated by the SCORE legislation in FY 1992, approximately 75% of these funds were allocated to local level planning and implementation activities and the remaining 25% were allocated to the State's Office of Solid Waste Management (OWM).

In addition, according to Minnesota's Waste Management Act, all counties in the State are required to implement variable rate garbage fees by 1993.

Minnesota statutes mandated the creation of the Resource Recovery Office in the Department of Administration based on the recognition that "environmental attention during the management of materials can conserve resources, prevent pollution, increase efficiency, and result in cost savings during the purchase, inventory, use maintenance, treatment and disposal of goods." Minnesota Statutes Chapter 593 mandates that state purchases of commodities and services shall apply and promote preferred waste management guidelines with special emphasis on the reduction of the quantity and toxicity of materials in waste. The statutes require all bid specifications to consider the products durability, reusability and ability to be recycled and marketed through the state's resource recovery program's. In response to this mandate the Department of Administration has established "Priorities for Environmental Management" to avoid and minimize waste and pollution during the acquisition, use, maintenance and discarding of goods. All state divisions are required to integrate "Priorities of Environmental Management" into all programs and must designate a representative to serve on the Department of Administration's Environmental Coordination Committee.

C. GRANT PROGRAMS

The OWM has issued over $800,000 in grants for source reduction projects in the 1991-1992 period. In the 1991-1992 period, the grant program required 1/2 of an FTE to administer the program. The OWM's provides source reduction specific grants for local government activities, educational activities, and private sector activities. The program offered eligible applicants 50% of costs for technical and economic feasibility studies, or up to $50,000 (75% of these funds were allocated for public organizations). Though the results of the projects funded by the OWM during this period are not yet available, the projects receiving financial assistance during the 1991-1992 period are summarized in Chapter 3 of this report. Information for 1992 financial assistance information is organized by the type of grant awarded and the total project cost. Part of these funds were distributed in the form of low interest implementation loans, however the OWM is attempting to phase out such loans in the future as they have proven more costly to administer than the matching grants.

D. AWARD PROGRAMS

The OWM is considering establishing an award program to recognize outstanding source reduction achievements by the business community. The OWM's Toxic Pollution Prevention Program currently operates a similar program to recognize businesses that are innovative leaders in toxic pollution prevention. The latter has proven an effective mechanism for raising public visibility and fostering cooperative partnerships with the business community.

E. TECHNICAL ASSISTANCE AND CASE STUDIES

In addition to the source reduction specific technical assistance programs described below, the OWM has sponsored the development of a non-regulatory technical assistance program (MnTAP), which is located at the University of Minnesota. MnTAP offers broader assistance to industries including pollution prevention and management assistance. It appears likely that MnTAP will expand its assistance to include solid waste source reduction with a continued focus on industrial sources.

Most state level technical assistance programs pertaining to source reduction are developing transferable business case studies and consumer outreach campaigns which can be implemented at the local level.

1. State Agency Technical Assistance Programs

All state divisions are required to integrate "Priorities for Environmental Management" into all programs and must designate a representative to serve on the Department of Administration's Environmental Coordination Committee. This committee is facilitated by the Resource Recovery Office. The "Priorities for Environmental Management" are presented in an inverted pyramid fashion stressing resource conservation options such as reuse and source reduction before resource discard options such as recycling. The Recovery Office facilitates and provides technical assistance to all state agencies in implementing the Priorities. In addition, the Office of Waste Management is developing procurement guidelines which can be implemented by either state agencies or businesses.

2. Local Government and Residential Technical Assistance Program Components

The OWM is required by the Waste Management Act to develop statewide education plan that communities can adapt for local use. The OWM has developed a waste education manual for communities which offers step by step guidance and includes camera ready art for print advertising. In addition, the OWM and the Pollution Control Authority sponsor an annual solid waste seminar where local level source reduction issues and achievements are discussed.

A transferable case study of waste reduction strategies for local governments was also conducted in Itasca County. This study demonstrated savings resulting from source reduction strategies implemented at the County courthouse and 16 Roads and Bridge Department garages. The OWM provided workshops and training seminars for Itasca County employees. The project prevented 3,782 tons of waste and resulted in an annual benefit of $4,780, not including avoided tipping fees.

The OWM's Waste Education Clearinghouse has also recently initiated a model public education campaign, entitled the SMART shoppers campaign in cooperation with the Minnesota Grocers Association (SMART = Saving Money and Reducing Trash). Interns at the OWM identified least waste packaging alternatives for a variety of different products. This involved assessing the volume, weight, and prices of least waste packages and their alternatives. A total of 17 product types were identified. The initial research revealed that less wasteful packages were

generally less expensive, and this fact served as the basis of the education campaign.

Two grocery stores have been used for the pilot program: Cub foods, located in Eagan, and Cash Wise located in Willmar. To date the OWM has printed 50,000 brochures; 1,000 each of seven different posters; reduction tip cards for cash register locations; and shelf talkers to hang next to products at the Eagan location. The brochures and posters include cost information related to least waste product and package materials as well as general information for reducing waste in the household.

A survey of over 100 customers in both locations was conducted before and after the campaign was initiated to evaluate the success of the program. Results from the surveys are presently being tabulated. In addition, computer tracking of targeted products is occurring.

During the kick-off week, OWM staff were present at the pilot locations, to pass out information and address questions. During this time period OWM staff gave presentations to two elementary schools which incorporated the methodology of the packaging research with a scavenger hunt. The OWM informed local media of the event and reported good coverage by television, radio and newspapers.

An implementation packet is currently being designed based on the OWM's experience in initiating the SMART shoppers campaign. In addition, the OWM plans to develop several variations of the same theme including: "Picnics and Vacation SMART Shopping,"
"Back-to-School SMART Shopping," and "Holiday SMART Shopping."

3. Industrial/Commercial Technical Assistance Program Components

The OWM focuses much of its activities on source reduction in business and industry and believes that businesses will represent the primary means for achieving source reduction. In its 1992 Policy Report, The OWM cites several factors contributing to the potential for waste reduction in the business sector including the following:

- Businesses produce more than half of the waste generated in Minnesota;
- Businesses will respond to opportunities for cost savings;
- The State can readily target information and assistance to businesses.

The OWM has considered regulatory approaches to require manufacturers to incorporate source reduction into products, packages, and operations, however the following barriers to this approach have prevented the OWM from pursuing a regulatory course of action:

- The market share of Minnesota is too small to affect change in the national and international market place;
- The political will does not exist to enforce the regulations if it means banning the sale of products and packaging
- Resources must be committed to administration and enforcement of requirements rather than program implementation and technical assistance.

Thus, the OWM has historically focussed on areas where source reduction coincides with the economic interests of businesses, and believes that non-regulatory efforts that emphasize cooperation can produce more significant results. The basic approach of the OWM in providing technical assistance to businesses has been to target specific representative sectors of the business community and develop transferable information and guidance documents. This approach entails developing partnerships with trade associations and conducting and disseminating specific case studies and guidance documents to interested industries. Three industry and commercial specific case studies have been completed: A newspaper publisher, a local conference center, and a hospital case study. In addition, to the greatest extent possible, the OWM provides staff and specific guidance to industries requesting information. Because OWM staff resources are limited, a video targeted at the business community has been developed. The video, entitled: "How to Implement a Commercial Source Reduction Program," provides step by step implementation guidance. The video will be supplemented with a planning manual in the Winter of 1993

F. COMMERCIAL WASTE EXCHANGE PROGRAMS: THE BARTER PROJECT

The Businesses Allied to Recycle through Exchange and Reuse (BARTER) project is not actually operated or administered by the OWM. Rather the OWM provides partial funding and assistance to the Minnesota Public Interest Research Group to operate the program.

BARTER simply provides an information clearinghouse for discarded materials that still have reuse value. The projects first exchange catalogue was recently published and included over 200 business listings. In addition each issue of the catalogue contains general information about waste reduction services provided by the OWM, case studies citing successes achieved through the BARTER program, and a list of OWM case studies and technical assistance materials available.

G. OWM INFORMATION DISSEMINATION AND COORDINATION ACTIVITIES

The OWM has developed a Waste Education Clearinghouse of resources and audio visual materials available for purchase, review, or borrowing. This Clearinghouse compiles information on recycling and other conventional waste management activities in addition to source reduction materials. Outreach information pertaining to source reduction developed by the OWM is disseminated through the Waste Education Clearinghouse. The activities of the Clearinghouse are guided by the Waste Education Coalition, a group of volunteers appointed by the director of the OWM that meets bimonthly to address interagency waste education issues within the state.

In addition, the OWM publishes a bimonthly report entitled "The Resource" which focuses on pollution prevention and source reduction activities occurring at State, local, and private
levels. Finally, the OWM sponsors the Minnesota Source Reduction Network which consists of a loose coalition of public and private officials who meet bimonthly to discuss source reduction efforts, projects, ideas, and plans.

<u>Contacts and Sources:</u>

Kenneth Brown and Tom Osdaba, Minnesota Office of Waste Management, 1350 Energy Lane, St. Paul, Minnesota 55108. (612) 649-5750

Minnesota Office of Waste Management, "1992 Solid Waste Policy Report," Saint Paul, Minnesota.

Minnesota Legislative Commission on Waste Management. "Waste Management Act and Related Acts and Laws." St. Paul, Minnesota.

II. WASHINGTON STATE DEPARTMENT OF ECOLOGY

Washington DOE incorporates source reduction, into all other waste management functions. Washington has a 50% waste recycling/reduction goal from 1990 levels by the year 1995.
The Department of Waste Reduction, Recycling and Litter Control (WRRLC) is a non regulatory department dedicated to the reduction of solid and hazardous waste. WRRLC has many activities with a source reduction focus that are not coordinated by the one dedicated source reduction staff person. Their major goal is to provide technical assistance to local governments so that they may implement more effective programs. The Department of Solid and Hazardous Waste (SHW) is the regulatory group within DOE.

A primary function of WRRLC is education. The department performed a survey in 1990 and found that the public didn't understand the concept of waste reduction, and decided to make reduction a central focus of the department.

All state sponsored waste reduction efforts are funded by a 1% tax on all waste collection and disposal activities. The two year Solid Waste Management Account budget for FY 1991-93 is $7,918,000 to fund solid waste activities including 40.9 FTE in WRRLC and SHW and the $3 million education grant program. This tax will have to be reauthorized to continue past July 1, 1993.

WRRLC has 23.2 FTE, with 13 at headquarters and 2-3 in each of four regional offices involved with solid waste issues. The regional staff work closely with communities to implement programs, whereas headquarters has more expertise in topic areas such as source reduction, packaging issues, composting, procurement etc. The goal of the program is to help municipalities develop and implement strong waste reduction programs.

A. THE DEPARTMENT OF WASTE REDUCTION, RECYCLING AND LITTER CONTROL

1. Financial Assistance

- **Grant Programs**

WRRLC is just starting its second year of a two year program called the Waste Reduction Public Information and Education campaign. WRRLC worked with local governments on a $1 million matching fund grant program to develop educational materials. Last year the focus was on "smart shopping." They also hired a consultant at $100,000 to develop PSAs.
This year WRRLC decided to change the grant system to better accommodate needs of the communities. WRRLC will hire a consultant to develop source

reduction display boards and source reduction promoting items, such as worm bins. WRRLC has collected all brochures developed in the state, and produced a list of items and assigned associated prices. This year $1 million equivalent will be made available to communities in educational materials. Each community is allocated money based on their population, and they can order what they want from the list by a certain date. After all orders are in, WRRLC will go out to bid for the items, and deliver them to the communities.

Communities have the option of accessing their allocated funds for items or services not on the list, but it must be coordinated by DOE staff. For example, certain communities decided to pool their funds to pay for production of an educational TV show. The show will be made available to others after it is created.

2. Governmental Technical Assistance

- **Local Governments**

Local governments have the responsibility of waste management. All counties have to do a solid waste plan with the cooperation of the included municipalities. The WRRLC regional staff have the responsibility to review the waste reduction and recycling component of the plans and provide technical assistance for implementation.

WRRLC is also producing a waste reduction manual to assist local governments in developing programs, using Seattle as a model.

WRRLC organizes meetings of recycling coordinators to disseminate information on various waste recycling and reduction topics.

Source reduction assistance is provided in many other ways by the department. For example, one person is dedicated to development of a Kindergarten through 12 waste reduction and recycling curriculum and a school awards program. A compost specialist is developing compost quality standards, as well as home composting and vermicomposting brochures.

- **State Agencies**

One full time staff person is working on options to landfill disposal for the 90 state agencies that generate waste, incorporating source reduction guidelines wherever possible.

3. Information Dissemination and Coordination Activities

One half time equivalent is dedicated to organizing an annual Waste Reduction

Symposium that is open to the public.

WRRLC performs an annual recycling survey to monitor progress. Until now, surveys of recycling companies have not been able to track where material is coming from. This year they awarded $350,000 to R.W. Beck to perform a statewide waste characterization study, with a goal of attempting to track reductions by community. WRRLC has also been awarded an EPA grant to quantify recycling and waste reduction.

4. Private Sector Technical Assistance

WRRLC is providing some technical assistance to businesses on source reduction. They worked with the Association of Washington Businesses to produce the booklet entitled "Waste Reduction in Your Business." Participation in source reduction is all voluntary. The DOE prefers to see what progress could be made on voluntary efforts before implementing mandates.

Contact: Joy St. Germain, Ecology Supervisor, Washington Dept. of Ecology, P.O. Box 4-7600, Olympia, WA 98504-7600, (206-459-6994).

IV. MICHIGAN

Waste reduction has been at the top of the waste management hierarchy since 1983 when the Department of Natural Resources (DNR) developed the state Solid Waste Strategy. In 1987, the state legislature created agencies both under the DNR and the Dept. of Commerce to assist businesses in waste reduction efforts. The two agencies merged in 1989 to form the Michigan Office of Waste Reduction Services (OWRS).

The "Protecting Michigan's Future" (PMF) Bond Program was approved by voter initiative in November 1988, allowing the state to borrow $660 million for environmental protection activities. The Solid Waste Alternatives Program (SWAP) is part of the PMF program, which provides matching funds for approved research and demonstration projects related to alternative solid waste management.

A. MICHIGAN OFFICE OF WASTE REDUCTION SERVICES (OWRS)

The OWRS provides technical assistance to the commercial sector under a partnership between the Departments of Commerce and Natural Resources. Their goal is to benefit both economic development and the environment in the context of the state waste reduction goals. The OWRS does not focus specifically on source reduction, but does provide some level of source reduction assistance to the private sector throughout Michigan. Technical assistance is provided through

telephone consultations and on-site visits. Other services provided by the OWRS include:

- Providing waste reduction checklists and other publications to help firms get started in looking into waste reduction opportunities;
- Analyzing waste reduction potential and techniques by industry sector;
- Sponsoring workshops and other educational seminars;
- Auditing and analyzing waste stream data;
- Administering an intern program through which specially trained university students assist companies in waste reduction and recycling activities.

The program staff consists of 3 engineers, a hazardous waste specialist, a hospital waste specialist, one person to coordinate a waste reduction program with the three major automobile manufacturers and 4-5 support staff.

Contact: Lucy Doroshko, Waste Reduction Clearinghouse, P.O. Box 30004, Lansing, MI 48909. (517) 373-3866.

B. SOLID WASTE ALTERNATIVES PROGRAM (SWAP)

SWAP provides matching funds to public and private sector entities for approved research and demonstration projects related to alternative solid waste management. There is a rigorous application process for the annual funding cycle, and grant proposals must quantify reduction or provide detailed calculations to estimate waste reduced in order to receive funding. There is no budget limit in the waste reduction category during a given year of this program. The SWAP staff review applications, followed by the Solid Waste Advisory Board and the Natural Resources Commission, and then recommendations are made to the legislature on projects to be funded.

SWAP has approved almost $97 million in grants and loans for 281 projects over the past four years. Seven waste reduction projects have received SWAP funds since the program started, although grant awards in the waste reduction category have declined over time. No waste reduction awards were made during the 1992-93 funding cycle.

Examples of waste reduction related grants include:

- Researching methods for reducing the amount of foundry sands that are landfilled through reclaiming and reuse. (Michigan Technical University,

$250,000)

- Purchase of equipment to increase capacity and provide diaper service to more households. (Tiny Tot Diaper Service, $63,800)

- Development of a set of industrial waste reduction case studies to promote technology transfer among industry. (University of Michigan, $50,000)

- Research into industrial waste streams to identify those having the greatest potential for waste reduction and developing reduction methodologies. (WW Engineering & Science, $90,000)

- Development of quantitative information and implementation tools to support and advance the state's business oriented waste reduction efforts. (Harwood Group, $135,000)

- Quantification and dissemination of results of intensive home source reduction activities of 200 participating families. (Michigan State University, $20,000)

A small percentage of the SWAP budget is allocated to administration of the program. SWAP technically has 14 FTE, although due to a state government hiring freeze the program currently only has 10 FTE.

Contact: Lisa Kapp, Michigan DNR, Solid Waste Alternatives Program Unit, Box 30241, Lansing, MI 48909, (517) 335-~~4863~~. 4923

V. OTHER STATE EFFORTS

The following state agencies were contacted for information on their source reduction programs. These agencies recognize source reduction as a priority, but have limited resources to implement programs. Each agency includes certain program components described above, at a lower level of funding and/or staff allocation.

A. IOWA WASTE REDUCTION CENTER

The Iowa Waste Reduction Center, housed at the University of Northern Iowa, provides free non-regulatory technical assistance to Iowa businesses and industries. It was established in 1988 after passage of the 1987 Groundwater Protection Act which promotes safe handling of solid and hazardous waste. Their services to businesses under 200 employees include technical assistance in curtailing solid, hazardous, wastewater and air emissions in the form of phone consultations, free, confidential on-site visits and an industry specific workshop series. Since 1988,

they have conducted 700 on-site visits, identifying methods for reducing and reusing waste. There is no mandatory implementation but the Center follows up with phone calls. If all the waste reduction suggestions were implemented, 55,000 tons of waste per year would be prevented. They also coordinate a waste exchange that is open to large businesses. To date, 20,000 tons of material has been exchanged.

The Center has 10 staff members, with 4 dedicated to on-site reviews. This past year, the Center received $525,000 in state funds from a $0.20 tax on solid waste disposal, as well as $300,000 from the EPA for pollution prevention projects and $109,000 from the Northwest Area foundation for rural waste management solutions.

The Center also co-sponsored an award program along with the Iowa Safety Council, Iowa Association of Business and Industry, Iowa Department of Natural Resources, and the Iowa Waste Reduction Center. Projects are awarded based on demonstrated environmental, economic and safety benefits, transferability and innovation. Companies with the best projects receive the award and accompanying statewide recognition for their projects.

Contact: John Konefes, Iowa Waste Reduction Center, University of Northern Iowa, Cedar Falls, Iowa. (319) 273-2079.

B. VERMONT AGENCY OF NATURAL RESOURCES

In 1987 Act 78 was passed setting a waste reduction goal of 40% by the year 2000. A Recycling Section was formed at that point, and effort has been made to incorporate source reduction into all program activities. The section does not have a dedicated staff person on source reduction, as all staff get involved on various levels, but they estimate one full time equivalent is spent on source reduction activities. (As a comparison there are 3 FTE working on hazardous waste "pollution prevention" issues).

The state program works cooperatively with local programs, providing technical assistance and informational brochures on backyard composting, diapers, non-toxic cleaning substitutes and packaging reduction. They are also coordinating an environmental shopping campaign through participating retail stores. They are not trying to measure success or waste diversion at this point.

FY 1993 budget (not including staff time):

$25,000 for waste reduction grant program for small businesses
$56,000 for education programs (primarily source reduction but some recycling)
$20,000 for waste exchange coordination

The Division of Solid Waste is funded by a surcharge on all disposal within the state. Only a small amount goes specifically to source reduction.

Contact: Lisa Young, Agency of Natural Resources, 103 Main Street, Waterbury, Vermont 05676. (802) 244-7831.

C. NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

The New Jersey Office of Recycling and Planning has one designated source reduction coordinator for the state who draws on other solid waste staff for relevant projects. Source reduction initiatives are promoted through the governmental sector, with the State Agency Waste Audit Manual; through the private sector with the booklet entitled "Case Studies from the Private Sector;" and through residents. The coordinator works with 21 county recycling coordinators who in turn implement programs for New Jersey's 8 million residents. The state has developed brochures on consumer oriented waste reduction including grass waste reduction. The coordinator works with the composting specialist to implement backyard composting programs and likewise for programs dealing with construction waste, etc. So far, no results have been quantified.

Although there is no source reduction budget, the coordinator's salary and expenses are payed through the tipping fee surcharge "recycling fund." This surcharge will expire in 1996, and have to be renewed.

The current coordinator finds that local officials are so concerned with meeting the 60% recycling goal that they give source reduction lower priority.

Contact: Athena Sarophides, New Jersey Department of Environmental Protection, Trenton, New Jersey 08625.

D. PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES

Act 101 was passed in 1988 setting a recycling goal of 25% by the year 1997, with a decrease in overall waste generation by that year. By 1990, the DES Bureau of Waste Management (BWM) dedicated one staff person to source reduction efforts. The BWM wrote a state source reduction strategy in 1990 that encourages quantity based user fees as a first step, and then made a major effort to take that step. A number of communities in the state had already implemented QBUFs so the coordinator wrote a report on QBUFs, including case studies within the state. He has been distributing this report to other communities, via recycling coordinators, Township and Boroughs Association and mass mailings to public works departments.

The next step of the plan is to develop a comprehensive waste reduction education

program, including school curricula, although they are just starting to develop materials at this point. They also plan to promote volunteer efforts such as the Pennsylvania Resources Council environmental shopping program.

The BWM is also working with the CONEG source reduction task force on legislative issues.

In the private sector, to comply with Act 97, all generators of "residual" waste (non-hazardous industrial waste) must prepare a source reduction plan by 1993 that identifies waste types generated and strategies for reduction. The DER developed a source reduction strategy manual for businesses. These plans will be requested with applications of siting, emissions and other permits. No specific reduction goal is mandated but a generator must justify a no-action plan. The DES has the power to deny permits sought.

There is no separate budget for source reduction efforts. All expenditures come from the Recycling budget.

Contact: Greg Harder, Pennsylvania Department of Environmental Resources, P.O. Box 2063, Harrisburg, Pennsylvania 117105. (717) 787-7382