United States Environmental Protection Agency Office of Solid Waste (5306W)

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# **\$EPA**

# Source Reduction Bibliography



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## Source Reduction Bibliography

United States Environmental Protection Agency Office of Solid Waste Washington, DC 20460

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# Introduction

Over the last decade, a wide range of literature has been published on waste reduction, covering the specific topics of source reduction, recycling, composting, and buying recycled products. A cursory review of these materials, however, reveals that relatively few documents focus solely on source reduction, while other documents might only contain a chapter or a section devoted to source reduction. Consequently, finding relevant information on source reduction often can be difficult and time-intensive.

The objective in compiling this bibliography is to make information on source reduction more accessible to solid waste managers. This bibliography compiles information sources on source reduction published since 1989. Significant effort was made to ensure that the information here is up-to-date, commonly available, and is either totally or substantially dedicated to source reduction.

> Source reduction (or waste prevention) is the design, manufacture, purchase, use or reuse of materials or products (including packages) to reduce their amount or toxicity before they enter the solid waste stream.

#### Audience and Scope

This bibliography is designed for municipal solid waste planners, policy makers, and others involved in managing or implementing programs on waste prevention.

The references are organized into 10 source reduction topics:

- Business and Industrial Program Development/Guidance
- Case Studies
- Community Source Reduction Program Development/Guidance

- Materials Exchanges
- Packaging
- Policy/Legislation
- Public Outreach/Education
- Toxic Materials in the Solid Waste Stream
- Variable Rates/Unit Pricing

Each citation includes the title, author, date of publication, and a brief abstract describing the nature and content of the reference. The bibliography also includes information on how each item can be obtained and its cost.

Publications are arranged alphabetically within each topic category by title. The appendix includes alphabetical indices by title and author or publisher (see pages A-1 and B-1).

#### Periodicals and Other Unclassified Reference Materials

A substantial number of journal articles on source reduction have been published. Periodicals, however, are not included in this bibliography. Appendix C-1 contains a list of selected periodicals that cover source reduction topics. Most journals publish an annual index of articles by subject.

#### Locating and Obtaining New Sources

This guide will be updated periodically to reflect changes in the listed resources and to add information as it becomes available. EPA invites readers to identify new sources of information and studies for inclusion in the next edition of this source reduction bibliography by filling out and mailing the enclosed reply card.

#### Acknowledgments

The assistance provided by the following individuals toward the development of this bibliography is greatly appreciated:

Kenneth Brown, Minnesota Office of Waste Management Andy Duncan, University of Michigan Kathy Frevert, California Integrated Waste Management Board Ellen Z. Harrison, Cornell Waste Management Board Reid Lifset, Yale University Paul Ligon, Tellus Institute

# **Business and Institutional Program Development/Guidance**

#### Berkshire Recycles: A Handbook for Berkshire County Businesses on Commercial Recycling and Waste Reduction

June 1990, 29 pp, \$5 Center for Ecological Technology 112 Elm Street Pittsfield, Massachusetts 01201 413 445-4556

#### The Bottom Line . . . A Guide to Waste Reduction for New York State Businesses

1992, 24 pp, \$2 New York State Department of Economic Development Office of Recycling Market Development 1 Commerce Plaza, Room 950 Albany, New York 12245 518 486-6291

#### The purpose of this handbook is to show businesses how to simplify the process of setting up waste reduction and recycling programs. Sections 1 through 3 help readers evaluate options and provide step-by-step guidelines for designing tailored programs. Sections 4 through 7 include directories of markets, haulers, and sources of recycling containers and recycled products. The source reduction section discusses options for four different types of businesses: offices, restaurants, retail outlets, and industry.

This publication was written to help businesses in New York state develop effective waste management programs that emphasize waste reduction, the components of which include source reduction, reuse, and recycling. The document discusses strategies to avoid waste disposal costs.

#### **Business Guide for Reducing Solid Waste**

EPA Document No. 530-K-92-004 November 1993, 41 pp, no charge U.S. Environmental Protection Agency 401 M Street, SW. (5305 W) Washington, DC 20460 800 424-9346

#### Business Guide to Waste Reduction & Recycling

1992, 110 pp, \$25 Xerox Document and Software Service Xerox Corporation 701 South Aviation Boulevard El Segundo, California 90245-9935 800 445-5554 This is a how-to guide, complete with waste assessment worksheets, for figuring out the most economical and sensible way to reduce solid waste in business. It walks readers through the process of setting up a source reduction program.

This book contains guidelines for companies seeking to control the amount of waste they generate. The guidelines present a wide variety of options for office product reuse and recycling. The book presents an analysis of the waste commonly generated by offices, followed by a brief evaluation of the waste disposal problem. The authors propose strategies for increasing management participation and for promoting employee enthusiasm for source reduction and recycling. Employee training programs are described, including the establishment of a team structure.

# Business Waste Reduction and Recycling Handbook

January 1991, 42 pp, no charge King County Solid Waste Division Department of Public Works Business Recycling Program 400 Yesler Way, Room 600 Seattle, Washington 98104 206 296-4466

#### Convenience Store Guide to Solid Waste Management

1993, 56 pp, \$30 National Association of Convenience Stores 1605 King Street Alexandria, Virginia 22314-2792 703 684-3600

#### Environmental Fact Sheets — Plastics:

*The Facts on Source Reduction* EPA Document Number 530-SW-90-017c 1990, 3 pp, no charge U.S. Environmental Protection Agency 401 M Street, SW. (5305W) Washington, DC 20460 800 424-9346

#### Food For The Earth

Food for the Earth, The Composting Council, National Audubon Society 1994, 4 pp, no charge Food For The Earth 114 South Pitt Street Alexandria, Virginia 22314 703 739-2407

#### Food For Thought: San Francisco Restaurants' Guide to Waste Reduction

*and Recycling* Terry Engle 1992, 12 pp, \$5 San Francisco Recycling Program 1145 Market Street, Room 401 San Francisco, California 94103 415 554-3400 This handbook includes a series of worksheets that can be used to quantify current disposal techniques (direct service and self-haul), quantify recyclable materials, and estimate savings from reduced disposal needs.

This guide was written for convenience store managers. It includes an inventory of store-level waste reduction, reuse, and recycling practices specific to the convenience store industry. It also recommends ways in which to inform consumers of a store's waste reduction program and provides a listing of recycling facilities and resource groups in each of the 50 states.

This fact sheet discusses methods that businesses can implement to reduce plastics use, and reasons that they should do so. By reducing the use of plastics, companies can reduce the volume of their plastic wastes. The main focus of the fact sheet is in solid waste reduction for industries, and it mentions toxicity reduction briefly.

This four-page brochure describes the Food For The Earth program, an industrial composting program offering information, guidelines, and advice to retail foodservice (restaurants and grocery stores) and industrial foodservice (large-scale production) companies. Such companies can reduce their waste generation significantly by composting their organic waste.

This guide was developed for food service establishments in the San Francisco area, and presents a variety of suggestions that restaurants can use to reduce waste. The guide is divided into two sections: tips and ideas on waste reduction and recyclables, and lists of local resources from which businesses can get more information, order supplies, or obtain recycling services. Although the second section is less applicable to businesses outside of the San Francisco area, the tips and suggestions found in the first section are useful on a nationwide basis.

#### The G.O.L.D. Manual: Methods to Assist State Agencies and Institutions in the Development of Waste Reduction and Recycling Plans

January 1991, 94 pp, \$19.50 Washington State Department of Ecology NTIS Document No. PB93-101400 National Technical Information Service 5285 Port Royal Road Springfield, Virginia 22161 800 553-6847

#### The G.O.L.D. Plan: A Strategy For Waste Reduction and Recycling at State Government Facilities

January 1991, 62 pp, \$19.50 Washington State Department of Ecology NTIS Document No. PB93-101418 National Technical Information Service 5285 Port Royal Road Springfield, Virginia 22161 800 553-6847

#### Mandatory Commercial Solid Waste

*Recycling: Rhode Island Case Study* September 1992, 94 pp, cost of photocopy Center for Environmental Studies P.O. Box 1943 Brown University Providence, Rhode Island 02912 401 863-3449

#### The Newark Guide to Source Reduction

*and Buying Recycled in the Workplace* December 1992, 21 pp, no charge Newark Office of Recycling 62 Frelinghuysen Avenue Newark, New Jersey 07114 201 733-6683

#### Office and Commercial Waste Reduction: A How-To Guide for Illinois Businesses and Organizations

1991, 56 pp, no charge Clearinghouse Illinois Department of Energy and Natural Resources 325 West Adams Street, Room 300 Springfield, Illinois 62704-1892 217 785-0310 This manual contains an outline of plan components, worksheets, and waste reduction and recycling information for various facility types. It includes information about: facility evaluations, substitutes for waste-intensive products, waste reduction techniques, purchasing practices, existing recycling programs, educational efforts, and communication program evaluations.

This publication defines a strategy for incorporating waste reduction and recycling into the management and operation of state government facilities. The plan describes the types of waste generated at state facilities and addresses issues like waste reduction, procurement, recycling, education, and communication.

This study analyzes the mandatory business recycling system in Rhode Island. One chapter is devoted to source reduction. The document gives waste stream characterization data, research description and methodology, highlights of the survey (i.e. success stories, financial impacts of recycling, program improvements), recommendations, and conclusions.

This booklet contains practical information about initiating source reduction activities in the workplace. Included are source reduction tips; checklists for offices, retail stores, manufacturers, and food service establishments; and examples of source reduction strategies at numerous companies and institutions. The booklet also contains a section about how and why to buy recycled products.

This manual focuses on waste reduction, which consists of reducing the amount of solid waste entering the waste stream, produced by commercial establishments, industries, and organizations. Waste reduction is achieved by two principal methods: waste volume reduction at the source and recycling. Practical suggestions are offered on the application of these approaches to reduce the quantity and cost of waste requiring disposal.

# Office Guide to Recycling and Buying Recycled Products

February 1994, 12 pp, no charge Ohio Department of Natural Resources Division of Litter Prevention and Recycling 1889 Fountain Square Court, Building F-2 Columbus, Ohio 43224-1331 614 265-6333

An Ounce of Prevention: Waste Reduction Strategies for Health Care Facilities

Connie Leach Bisson, Glenn McRae, Hollie Gusky Shaner Catalog Number 05007 1993, 214 pp, \$60.95 American Society for Healthcare Environmental Services American Hospital Association 840 North Lake Shore Drive Chicago, Illinois 60611 312 280-3365

#### Recycling and Source Reduction for the

Lodging Industry 1993, 84 pp, \$17 (member), \$27 (non-member) American Hotel & Motel Association (AHMA) P.O. Box 753 Waldorf, Maryland 20604 301 705-7455

#### Reducing Office Paper Waste

Robert Graff and Bette Fishbein 1991, 25 pp, \$18 INFORM, Inc. 381 Park Avenue South New York, New York 10016-8806 212 361-2400 This document gives several strategies for reducing the waste that an office produces, including choosing products with minimal packaging and maximum durability. Forms and worksheets to facilitate recordkeeping and monitoring are also included.

This book illustrates a basic approach to implementing waste reduction and recycling strategies in health care facilities. The first chapter is devoted to source reduction, while the others discuss general public environmental education and communications, waste assessment, recycling, and buying recycled products.

While this document is primarily devoted to recycling in the hotel industry, a small section discusses source reduction. It discusses the changes that hotels and motels can make to reduce waste, like using durable soap dispensers instead of disposable plastic bottles and reducing the packaging on single-use items. Included is a discussion of a survey conducted by the AHMA to determine the percentage of hoteliers that had recycling or reduction programs.

This report analyzes office paper waste and outlines possible solutions, using photocopying as the focus from which other strategies can be extrapolated. It discusses the source reduction and cost savings potential of both two-sided photocopying and of reducing the number of photocopies made. The report creates a framework for evaluating costs and benefits by assessing the impact of a variety of scenarios on the quantity of copy paper waste generated.

#### Resourceful Waste Management: A Guide for Minnesota/Metropolitan Area Businesses and Industries

Fall 1994/1995, 80 pp, no charge Waste Education Clearinghouse Office of Environmental Assistance 520 Lafayette Road North, 2nd Floor St. Paul, Minnesota 55155 612 215-0232

#### Solid Progress

1993, 13 pp, no charge Grocery Manufacturers of America 1010 Wisconsin Avenue, NW., Suite 900 Washington, DC 20007 202 337-9400

#### Source Reduction and Recycling: Environmental Stewardship for the 1990s

1990, 6 pp, no charge Eastman Kodak Company Literature and Marketing Support - 412L Rochester, New York 14650-0608 800 242-2424

#### Source Reduction Now: How to Implement a Source Reduction Program Kenneth Brown

February 1993, 130 pp, no charge Waste Education Clearinghouse Office of Environmental Assistance 520 Lafayette Road North, 2nd Floor St. Paul, Minnesota 55155 612 215-0232

# The Supermarket Diet: Watching Our Waste

Jackie Prince December 1990, 43 pp, \$5 Publications Environmental Defense Fund (EDF) 257 Park Avenue South New York, New York 10010 212 505-2100 This document is an updated version of a November 1993 publication by the same title. The first half of the guide provides information on how to make businesses "green," with suggestions like maintaining environmentally sound lunchrooms, offices, and production spaces. The second half applies mainly to Minnesota businesses, and includes lists of information resources for recycling and source reduction.

This document discusses the grocery industry's progress in waste reduction and recycling. The brochure gives examples and success stories for companies that have changed their packaging and purchasing habits to create less waste, and recycled that which they do create.

Kodak supports improvements in environmental quality by directing business units to demonstrate environmental sensitivity in each element of the product life cycle. Source reduction, through process improvements and the use of fewer, different, or recycled materials, is a primary goal. Kodak is developing new products, technologies, and programs that minimize waste and support recycling.

This manual summarizes almost three years of field research conducted by the Minnesota Office of Environmental Assistance. It provides information on how to measure product and behavior changes that prevent waste creation, gives guidelines on how to implement a successful source reduction program in an organization, and describes problems and suggests well-tested methods to solve those problems. The manual includes charts for calculating savings, case studies, fact sheets, and checklists.

This report focuses on source reduction and recycling in the food service industries. Shopping bags, in-store solid waste management, consumer awareness and education, and labeling programs are the main areas of discussion. EDF offers specific recommendations on each of these areas and examples of stores that have already implemented reduction programs. The appendices contain a list of definitions and the Food Marketing Institute's solid waste policy statement.

#### Waste in the Workplace

1991, 28 pp, \$6.50 Keep America Beautiful, Inc. Order Department Mill River Plaza 9 West Broad Street Stamford, Connecticut 06902 203 323-8987

#### The Waste Not Book

1993, 70 pp, \$35 Minnesota Hospital Association Public Affairs Division 2221 University Avenue, SE., Suite 425 Minneapolis, Minnesota 55414 612 331-5571

#### Waste Prevention: It Makes Good Business Sense

EPA Document No. 530-F-93-008 September 1993, 2 pp, no charge U.S. Environmental Protection Agency 401 M Street, SW. (5305W) Washington, DC 20460 800 424-9346

#### Waste Not, Want Not!

1991, 20 pp, no charge Scott Paper Company Environmental Division Scott Plaza 1 Philadelphia, PA 19113 610 522-5000

#### Wisconsin's Business Waste Reduction & Recycling Portfolio: Protect the Environment and Your Bottom Line

Wisconsin Department of Natural Resources 1995, 8 pp, \$10 (out-of-state), no charge (in-state) Wisconsin Department of Administration Document Sales Unit P.O. Box 7840 202 South Thornton Avenue Madison, Wisconsin 53707-7840 608 266-3358 This book discusses how small businesses can reduce the amount of municipal solid waste they add to the waste stream. The appendices list resources, equipment, and steps in development of the program. Worksheets are provided as well.

This book is a practical guide for hospitals. It offers innovative ideas for reducing the amount of material that becomes waste. The book contains success stories from Minnesota hospitals, presented by type of material. It also includes information on buying products and materials that encourage source reduction, properly disposing of infectious waste, and conducting waste audits.

This pamphlet discusses the principles, benefits, and approaches to waste reduction in a business environment. It provides information on using or manufacturing minimal or reusable packaging, using and maintaining durable equipment and supplies, reusing products and supplies, and reducing the use of hazardous constituents.

This booklet addresses source reduction and recycling in various businesses. Aspects of source reduction are discussed, such as identifying the high waste generation rates, choosing high performance products, controlling materials use, reducing packaging waste, and improving office efficiency. Other parts of the booklet give tips on starting an effective recycling program, conducting a trash audit, finding buyers or brokers for trash, instituting source reduction practices, promoting a program within a company, and setting realistic goals for waste reduction.

This brochure contains information on waste reduction and recycling in Wisconsin. It includes a fact sheet on the statutory requirements of the Waste Reduction and Recycling Law for Wisconsin businesses; information on the economic and environmental advantages of waste reduction and recycling; a list of available resources; source reduction trends among Wisconsin businesses; and telephone numbers for in-state resources.

## **Case Studies**

#### 53 Simple Things Universities and Colleges Can Do to Reduce Waste: Case Studies of University Source Reduction, Recycling, and Composting

May 1991, 45 pp, \$10 Integrated Solid Waste Management Office Board of Public Works 200 North Main Street, Room 580 City Hall East Los Angeles, California 90012 213 237-1444

#### Description of a Successful College Recycling Program: A Look at Reed Recycling: Reed College (Portland, Oregon)

May 1993, 23 pp, cost of photocopy Reed College Recycling P.O. Box 118 Reed College Portland, Oregon 97202 503 235-3451

#### Illinois Success Stories in Waste Reduction

1992, 30 pp, no charge
Clearinghouse
Illinois Department of Energy and
Natural Resources
325 West Adams Street, Room 300
Springfield, Illinois 62704
217 785-0310

#### **Precycle: Final Report**

1990, 30 pp, no charge Boulder Energy Conservation Center P.O. Box 791 Boulder, Colorado 80306 303 441-3278 This guidebook (developed to help the City of Los Angeles comply with California's recycling law) is intended to help colleges and universities improve waste reduction and recycling activities on campus. Strong administrative leadership and the cooperation of university staff, students, and faculty are necessary to develop waste reduction and recycling programs. The first chapter emphasizes the importance of reducing and reusing, and describes 16 ways to reduce or reuse waste generated on campuses. A directory in the back of the guidebook provides information about specific programs in California.

This report was written by those who instituted a reduction and recycling program at this small college. They describe the different aspects of the program, including paper reuse and recycling, reusable mug promotion and sales, and education. Although the information is very specific to Reed College, it does give some insight into the challenges of university reduction and recycling.

This booklet presents success stories about Illinois companies and organizations that have taken action to use resources wisely and reduce solid waste. The case studies reflect many business areas, including communications and publishing, distribution, health care, retail, utilities, and manufacturing.

This report documents Boulder's experience, from initial design to program evaluation, in developing a broadbased, highly visible source reduction campaign. In September 1990, the City of Boulder launched a pilot project on precycling in grocery stores. "Precycling" means practicing resource conservation by using only what is really needed. Boulder's precycling project was sponsored by EPA and was designed not only to initiate precycling in Boulder, but also to serve as a model program for the Rocky Mountain Region.

# Source Reduction Case Studies and Fact Sheets

1990 to present, 4 pp each, no charge Environmental Services Division Departments of Commerce and Natural Resources P.O. Box 30004 Lansing, Michigan 48909 517 335-1178

#### Spotlight on Waste Prevention: EPA's Program To Reduce Solid Waste at the Source

EPA Document No. 530-K-95-002 August 1995, 16 pp, no charge U.S. Environmental Protection Agency 401 M Street, SW. (5305W) Washington, DC 20460 800 424-9346

#### Waste Prevention Pays Off: Companies Cut Waste In the Workplace

EPA Document No. 530-K-92-005 September 1993, 24 pp, no charge U.S. Environmental Protection Agency 401 M Street, SW. (5305W) Washington, DC 20460 800 424-9346 This series of case studies and fact sheets covers source reduction and other related topics. The Michigan Environmental Services Division has published them over the last several years. The exact titles for the case studies and fact sheets concerning conservation tips for businesses, waste reduction terms, employee involvement in waste reduction, and other subjects can be obtained by contacting the Michigan Environmental Services Division.

This booklet discusses the reasons to prevent waste; the benefits businesses, governments, and consumers can achieve through waste prevention; and what EPA is doing to encourage the proliferation of waste prevention as a business ethic.

This booklet provides information on reducing waste in the office environment. It presents brief overviews of waste prevention efforts that work for different types of businesses. The handbook includes strategies for using or manufacturing minimal or reusable packaging; using and maintaining durable equipment and supplies; reusing products and supplies; using supplies and materials more efficiently; composting yard trimmings; exchanging, selling, or giving away unneeded goods or materials; and eliminating unnecessary items.

# **Community Source Reduction Program Development/Guidance**

#### Decision-Makers' Guide to Solid Waste Management, Volume II

August 1995, 355 pp, no charge EPA Document No. 530-R-95-023 U.S. Environmental Protection Agency 401 M Street, SW. (5305 W) Washington, DC 20460 800 424-9346

#### Forty Ways to Make Government Purchasing Green

Eleanor J. Lewis and Eric Weltman 1992, 102 pp, \$6 Government Purchasing Project P.O. Box 19367 Washington, DC 20036 202 387-8030

## Making Less Garbage: A Planning Guide for Communities

Bette K. Fishbein and Caroline Gelb 1992, 192 pp, \$30 INFORM, Inc. 381 Park Avenue South New York, New York 10016-8806 212 361-2400 This guide is designed to help local government policymakers and other solid waste management practitioners understand solid waste management issues. It offers various approaches and discusses how these options affect each other. The guide includes information about source reduction, municipal solid waste collection and transfer systems, recycling, composting, combustion, land disposal, special wastes, public education and involvement, and financing and revenues.

This document lists purchasing activities that federal agencies can implement to help the environmental products market and decrease the amount of solid waste generated. The book discusses basic purchasing principles and includes case studies and resources that might be helpful to purchasers seeking environmentally preferable products. Checks should be made payable to "CRSL."

This report is divided into three parts. Part I, The Essentials of Source Reduction Planning, discusses solid waste issues in the United States and the benefits of source reduction. It describes how communities can establish source reduction policies, goals, and measurement systems; and outlines the administrative structure and budget requirements for an effective source reduction program. Part II, Source Reduction Initiatives, describes dozens of specific activities that are being implemented around the country to reduce the amount and/or toxicity of solid waste. These activities include government, institutional, and business programs; education; economic incentives and disincentives; regulatory measures; and programs aimed specifically at reducing toxics. Part III, a Source Reduction Planning Checklist, presents an outline of the essential components of effective source reduction programs and a list of specific strategies that can be selected in accordance with local needs.

#### **Pollution Prevention Resource Guide**

1993, 80 pp, no charge
Alaska Department of Environmental
Conservation
Pollution Prevention Office (incorporated into Office of Compliance Assistance, 1995)
555 Cordova Street
Anchorage, Alaska 99501
907 269-7500

#### This document discusses the reasons and methods for instituting pollution prevention and source reduction programs in local communities. The document contains lists of resources that include governmental organizations, citizens' groups, related businesses, and publications. Much of the information is Alaska-specific, but it offers insight into what might be available in other regions.

#### Waste Prevention Tool Kit for Local Governments

Ellen Z. Harrison and Richard J. Angell December 1992, 172 pp, \$14.95 Cornell University Resource Center 7 Business and Technology Park Ithaca, New York 14850 607 255-2080

#### Waste Reduction and the Model Community

Myra Gordon October 1989, 55 pp, \$25 Central States Education Center 809 South Fifth Street Champaign, Illinois 61820 217 344-2371

#### Waste Reduction Programs for Commercial/Industrial Solid Waste: A

*Guide for Local Governments* March 1994, 134 pp, no charge North Carolina Office of Waste Reduction Department of Environment, Health, and Natural Resources 3825 Barrett Drive, Suite 300 Raleigh, North Carolina 27609 919 541-4100 800 763-0136 This document can be used to implement local waste prevention programs. Several chapters include cameraready flyers and fact sheets that can be reproduced by local governments. Some of the topics covered include unit pricing, yard waste bans, procurement policies, and consumer education.

This document discusses solid waste reduction methods for creating a "model" community. The document provides information about how to implement a waste reduction program, presents a case study of the Champaign-Urbana program, and contains outreach materials from a model supermarket. The guide also provides a waste reduction checklist, worksheets, sample letters, press releases, and resource lists.

This manual helps community recycling coordinators establish or expand waste reduction programs for commercial and industrial solid waste. It provides information to help local governments work with offices, retailers/ wholesalers, hotels, service industries, universities/ colleges, printers and publishers, textile mills, hospitals, restaurants, public/private schools, property owners, and manufacturing industries.

## **Materials Exchanges**

#### By-Product and Waste Search Service

1995, 2 pp, no charge Iowa Waste Reduction Center By-Product and Waste Search Service University of Northern Iowa Cedar Falls, Iowa 50614-0185 800 422-3109

#### California Waste Exchange: Directory of

*Industrial Recyclers* 1994, 42 pp, no charge California Environmental Protection Agency Department of Toxic Substances Control Hazardous Waste Management P.O. Box 806 Sacramento, California 95812-0806 916 324-1802

# This flyer is a promotional pamphlet for the By-Products & Waste Search Service, a free and confidential program that promotes the reuse of Iowa industry by-products and wastes. The service helps companies analyze their waste streams, facilitates materials exchanges, and locates secondary materials for companies to use in their own operations.

This directory is designed to promote the use, reuse, and exchange of industrial wastes. As raw material costs escalate, waste and materials exchanges become more attractive and necessary. The document lists California recyclers by address, phone, contact person, and the materials they deal with.

#### How To Recycle or Reuse Almost Anything

New York City Department of Sanitation/Recycling Program June 1991, 18 pp, no charge for New York City residents Recycling Program Bowling Green Station New York, New York 10274-0156 212 219-8090 This guide is designed to help businesses recycle or reuse much of their waste stream. It contains listings of materials and firms in the New York City area that will take materials for recycling or reuse. It also lists buy-back and drop-off centers, and contains suggestions for reusing many of the materials listed.

#### **Review of Industrial Waste Exchanges**

EPA Document No. 530-K-94-003 September 1994, 61 pp, no charge U.S. Environmental Protection Agency 401 M Street, SW. (5305W) Washington, DC 20460 800 424-9346

#### Starting a Materials Donation Program: A Step-By-Step Guide

May 1993, 56 pp, no charge Materials for the Arts New York City Departments of Cultural Affairs and Sanitation 410 West 16th Street, 4th Floor New York, New York 10011 212 255-5924 This report reviews the current activities and status of North American waste exchanges, including marketing systems for waste and surplus from the federal government. It also provides recommendations for encouraging greater levels of reuse and recycling through waste exchanges.

This document discusses the reasons for and methods to begin a materials exchange program that benefits local arts organizations. Businesses of all kinds donate material that they would otherwise throw away, and arts organizations pick out the things that they can use (i.e. scrap textiles, machinery, paper). The booklet gives a step-bystep explanation of how to organize an exchange program.

# Packaging

#### Case Reopened: Reassessing Refillable Bottles

David Saphire 1995, 366 pp, \$25 INFORM, Inc. 381 Park Avenue South New York, New York 10016-8806 212 361-2400 This book discusses the value of source reduction in general, explains the history of refillable bottles, provides comparative cost and environmental data for refillable versus single-use containers, discusses relevant marketing and policy issues (e.g. mandatory deposit regulations), and includes case histories.

#### Delivering the Goods: Benefits of

*Reusable Shipping Containers* David Saphire 1995, 32 pp, \$20 INFORM, Inc. 381 Park Avenue South New York, New York 10016-8806 212 361-2400

#### Final Report of the Source Reduction Task Force

September 1989, 21 pp, \$20 Coalition of Northeastern Governors, Inc. Policy Research Center 400 North Capitol Street, NW. Washington, DC 20001 202 624-8450

#### Food Packaging, Food Protection, and the Environment: A Workshop Report

October 1991, 27 pp, no charge for single copies Institute of Food Technologies 221 LaSalle Street, Suite 300 Chicago, Illinois 60601 312 782-8424 This document focuses on the benefits of reusing packaging as a strategy for reducing solid waste at its source. It provides comparative waste generation and cost data for reusable plastic crates versus single-use corrugated shipping containers. It also discusses product performance issues, design features, obstacles to container reuse, and success stories.

This report presents several long-term actions to address the issue of source reduction. It recommends the formation of the Northeast Source Reduction Council, which would be made up of state officials, business and industry representatives, and non-profit groups. The council's mandate is to encourage source reduction through modifications in product design and packaging of consumer products, to serve as a forum for CONEG states to recommend solid waste management policies, and to oversee a consumer education campaign on packaging source reduction.

This report discusses the important role that packaging plays in preserving food and ensuring that it is distributed safely from the processing plant to the consumer. It addresses public concern about packaging disposal and presents recommendations for uniform, national packaging standards and a coding system to identify recyclable materials in packaging. The report also discusses an 11step plan for implementing national uniformity which includes encouraging ongoing efforts to design and use packages that minimize resource consumption, support integrated solid waste management, and use life cycle analysis in source reduction efforts.

#### IoPP Packaging Reduction, Reuse,

*Recycling and Disposal Guidelines* 1993, 10 pp, \$5 Institute of Packaging Professionals 481 Carlisle Drive Herndon, Virginia 22070 703 318-8970

#### An Ounce of Prevention: Strategies for Cutting Packaging Waste

1994, 75 pp, \$15 Californians Against Waste Foundation 926 J Street, Suite 606 Sacramento, California 95814 916 443-8317

#### Packaging and the Environment:

*Alternatives, Trends, and Solutions* Susan E.M. Selke 1990, 77 pp, \$39 Technomic Publishing Company, Inc. 852 New Holland Avenue, Box 3535 Lancaster, Pennsylvania 17604 717 291-5609

#### Preferred Packaging Manual

1991, 44 pp, \$50 Coalition of Northeastern Governors, Inc. Policy Research Center 400 North Capitol Street, NW. Washington, DC 20001 202 624-8450

#### Taking the CONEG Challenge: First Year Update - Voluntary Packaging Reductions by Industry

November 1993, 40 pp, \$30 Coalition of Northeastern Governors, Inc. Policy Research Center 400 North Capitol Street, NW. Washington, DC 20001 202 624-8450 These guidelines help packaging professionals examine the environmental impacts of their structural design and engineering decisions. Individual companies can tailor the guidelines to suit their specific requirements.

This action guide for manufacturers promotes reducing waste by reducing packaging. The guide focuses on material procurement, internal transport, and consumer/external packaging design. Source reduction checklists and waste audit guidelines are included for companies to apply the information directly to their own situations.

This book examines packaging's influence on water and air pollution, ozone depletion, and solid waste generation. It also discusses degradable packaging, legislative approaches to reducing packaging in solid waste, and environmental considerations in packaging design.

This publication presents CONEG's Preferred Packaging Guidelines, which establish the following hierarchy of alternatives for source reduction in packaging: eliminate, minimize, refill/reuse, and recycle and buy recycled material. The manual also provides information on applying the guidelines.

This report provides specific examples of voluntary source reduction actions that companies have taken to address the solid waste problem. Represented products cover a wide range, including beverages, chemicals, computers, paper products, electronics, food, auto parts, plastics, pharmaceuticals, photographic equipment, soaps, cosmetics, and tobacco. The report addresses package elimination and minimization, reusable/refillable/returnable packaging, recyclable/recycled material, and heavy metals in packaging.

# **Policy/Legislation**

#### Curbing Waste in a Throwaway World: Report of the Task Force on Solid Waste Management

1990, 68 pp, \$25.00 National Governors' Association Publications P.O. Box 421 Annapolis, Maryland 20701 301 498-3738

#### Federal Disincentives: A Study of Federal Tax Subsidies and Other Programs Affecting Virgin Industries and Recycling

August 1994, 73 pp, no charge U.S. Environmental Protection Agency Attn: Michael Podolsky Office of Policy, Planning, and Evaluation Office of Policy Analysis 401 M Street, SW. (2125) Washington, DC 20460 202 260-9099

## Federal Options for Reducing Waste Disposal

U.S. Congress October 1991, 85 pp, no charge CBO Publications Room 413, Ford House Office Building 2nd & D Streets, SW. Washington, DC 20515 202 226-2809

#### Germany, Garbage, and the Green Dot: Challenging the Throwaway Society

Bette Fishbein 1994, 262 pp, \$28 INFORM, Inc. 120 Walls Street New York, New York 10005 212 361-2400 This report discusses the progress of the National Governors' Association Task Force on Solid Waste Management. In this report, the Task Force states that a combination of source reduction and recycling will be required if individuals and businesses are to reach a 50 percent waste reduction goal by 2000. The recommendations put forth in this document include state strategies to achieve goals and a mechanism for measuring progress.

This report focuses on the use of incentive policies to stimulate both recycling and source reduction. It defines and describes programs included under the heading of incentives and a range of objectives that the incentives are intended to achieve. The report also presents a sample of existing incentive programs that are either proposed or already in place in the United States. No attempt is made in this report to catalog all of the incentive programs that are in place. Instead, it illustrates the range of incentives that might be utilized to achieve source reduction and recycling goals.

This report examines actions that the U.S. government might take to address municipal solid waste issues. A disposal tax and reuse subsidy, a virgin material tax, an investment tax credit for recycling, and a recycling credit system are discussed.

This book documents Germany's Packaging Ordinance, which makes industry responsible for packages to the end of their lifecycle. It provides detailed analysis of the Duel System set up by industry and discusses other applications of extended producer responsibility for products, such as automobiles and electronic goods. This book looks at the implications, for the U.S., of a policy that provides incentives to reduce waste at the design stage for packages and products.

#### Getting at the Source: Strategies for

**Reducing Municipal Solid Waste** World Wildlife Fund and The Conservation Foundation 1992, 138 pp, \$15 (paperback), \$25 (hardcover) Island Press P.O. Box 7 Covelo, California 95428 800 828-1302

#### Guidelines for the Collection of Recyclable Materials and Reduction of Solid Waste in the State System of Education

August 1989, 15 pp, no charge Office Of Environmental Education Florida Education Center 325 West Gaines Street Room 224-C Tallahassee, Florida 32399-0400 904 487-7900

# Montgomery County Policy on Waste Reduction

April 1993, 4 pp, no charge Montgomery County Department of Environmental Protection Executive Office Building 101 Monroe Street, 6th Floor Rockville, Maryland 20850 301 217-2803

#### **Overcoming Barriers to Large-Scale Diversion of Municipal Solid Waste**

Doug MacDonald and Paula Vopni 1993, 118 pp, \$30 International Council for Local Environmental Initiatives World Secretariat 8th Floor, East Tower, City Hall Toronto, Ontario M5H 2N2 Canada 416 392-1462 This book explores the concept of source reduction, provides an evaluation framework for devising effective source reduction strategies, and examines several strategies in detail, such as labeling programs for consumer products. The authors place particular emphasis on the product component of the waste stream and explore how systematic changes in the design and use of products would reduce waste. Household batteries are used in an example of the application of the recommended framework.

This document discusses the basic reasons for implementing source reduction and recycling programs, including economic, environmental, and legislative incentives. It describes the elements that should be included in a source reduction program and a recycling program. Suggestions are included for pooling efforts with neighboring education facilities to find markets and share procurement costs.

This pamphlet, published by Montgomery County, Maryland, places source reduction at the top of its hierarchy for solid waste management and states that all waste reduction measures within the county's power should be implemented. The framework of the county-wide program is composed of the following waste reduction goals: achieve zero trash growth per person and per employee; expand waste reduction information and programs; examine county government operations for waste reduction opportunities; participate in and encourage regional waste reduction efforts; and explore waste reduction incentives and disincentives.

This report surveys the current barriers to large-scale solid waste reduction and recycling programs in North America and Europe. It offers an analysis of the problems with diversion efforts of the 1980s and 1990s, including separation, collection, financing, and markets, and provides case studies of particularly successful efforts in diverting solid waste. An extensive bibliography is included, as is a contact list for the best sources of information on related topics.

#### Prosperity Without Pollution: The Prevention Strategy for Industry and Consumers

Joel S. Hirschhorn and Kirsten U. Oldenburg 1991, 369 pp, \$24.95 Van Nostrand - Reinhold 7625 Empire Drive Florence, Kentucky 41042 800 842-3636

# The Solid Waste Dilemma: An Agenda for Action

EPA Document No. 530-SW-89-019 February 1989, 70 pp, no charge U.S. Environmental Protection Agency 401 M Street, SW. (5305 W) Washington, DC 20460 800 424-9346

#### Source Reduction: A Working Definition

William E. Franklin and Warren A. Bird December 1989, 26 pp, \$1.50 Council on Packaging in the Environment 1255 23rd Street, NW., Suite 850 Washington, DC 20037 202 331-0099

#### Source Reduction as an Option for Municipal Waste Management

H.M. Freeman NTIS Document No. PB90-113176 1989, 32 pp, \$22 National Technical Information Service 5285 Port Royal Road Springfield, Virginia 22161 800 553-6847

#### Source Reduction Council of CONEG: Progress Report

March 1990, 64 pp, \$35 Coalition of Northeastern Governors, Inc. Policy Research Center 400 North Capitol Street, NW. Washington, DC 20001 202 624-8450 This book describes pollution prevention benefits and strategies for hazardous and solid waste reduction. It emphasizes individual responsibility in these efforts. The solid waste reduction sections focus on changing consumer behavior and reducing packaging, junk mail, and the toxicity of household products.

This report presents EPA's goals and recommendations for state and local government, industry, and private citizens, to address municipal solid waste management issues. The report recommends integrating source reduction, recycling, combustion, and landfilling to custom design a solid waste management program.

This booklet is the result of a collaboration between U.S. Congress, Office of Technology Assessment; U.S. Environmental Protection Agency; Coalition of Northeastern Governors; and the Environmental Action Foundation. The document discusses source reduction as a waste management option, specific terms used to describe source reduction goals, conditions to be included in the definition of source reduction, and source reduction measurement.

This document is an overview of approaches to lowering or eliminating the volume or toxicity of wastes in the refuse stream. It examines four criteria: toxicity contributors, significant quantity contributors, items with short useful life spans, and items that contribute significantly to the waste stream.

This progress report of the Source Reduction Council of the Coalition of Northeastern Governors (CONEG) details the activities of the Council from its inception in September 1989 to March 1990. The report focuses on model toxics legislation (prohibiting the use of heavy metals in packaging), preferred packaging guidelines (identification and quantification of types and amounts of packaging), and an informational program (mailing lists, issues statement, and a clearinghouse on source reduction technologies).

#### University and College Solid Waste Reduction and Recycling

Bruce A. Hegberg, Gary R. Brenniman, and William H. Hallenbeck 1992, 129 pp, no charge Clearinghouse Illinois Department of Energy and Natural Resources 325 West Adams Street, Room 300 Springfield, Illinois 62704 217 785-0310

#### Waste Prevention, Recycling, and Composting Options: Lessons Learned from 30 Communities

EPA Document No. 530-R-92-015 February 1994, 50 pp, no charge U.S. Environmental Protection Agency 401 M Street (5305W) Washington, DC 20640 800 424-9346

#### Waste Reduction: Policy and Practice

1990, 100 pp, \$39.95 John Wiley & Sons 1 Wiley Drive Summerset, New Jersey 08875 212 645-7880

# Worldwatch Institute Report: State of the World 1991

1991, 17 pp, \$11.95 Worldwatch Institute 1776 Massachusetts Avenue, NW. Washington, DC 20036 202 452-1999 This report provides guidance for Illinois universities and community colleges on how to develop effective waste reduction plans that comply with Illinois' "College Recycling Law." Under this law, all Illinois public universities and community colleges are required to develop a waste reduction plan covering 10 years, followed by 5-year updates. All plans should be developed by January 1, 1995 and should achieve, by January 1, 2000, a 40 percent reduction of the 1987 level of solid waste destined for landfill disposal.

This report presents various strategies that can be used by municipalities to reduce net waste generation. It provides a brief overview of variable refuse rates, and comments on the positive affects of variable rate pricing on recycling participation and source reduction. The report includes several case studies.

This book is about policy and practice to reduce the amount of toxicity of solid waste produced in the U.S. It refers to "waste reduction" as the sum of source reduction and recycling. The book begins with a characterization of solid waste streams, emphasizing hazardous waste and municipal solid waste. It also addresses the reduction of industrial wastes and municipal solid waste. Existing federal and state requirements for reducing industrial wastes are addressed first, followed by a discussion of recent federal legislative initiatives in the area. A similar review follows for municipal solid waste reduction policy.

This book discusses various alternatives for managing solid waste, among other things. A full chapter, "Reducing Waste, Saving Materials," is devoted to source reduction. Ultimately, the goal is to reduce the amount of material entering the manufacturing process. A framework of incentives must be devised to encourage consumers to reduce waste. Programs that take a "cradleto-grave" approach will be more effective in promoting waste reduction, reuse, and recycling than those that award labels based on a single characteristic, such as if a product is made from recycled materials.

# **Public Outreach/Education**

#### Buy Recycled Training Manual: A Guidebook for Buying Recycled Products

October 1994, 123 pp, \$15 (government and non-profit), \$20 (individual and private) Northeast Maryland Waste Disposal Authority 25 South Charles Street, Suite 2105 Baltimore, Maryland 21202 410 333-2730 This is a Maryland-specific document that discusses buying recycled products. Maryland resources and companies are cited, although the principles apply to a broader audience. Another version of the manual includes more general information (see below).

#### Buy Recycled Training Manual: A Guidebook for Government Buyers and Using Agencies

December 1993, 86 pp, \$15 (government and non-profit), \$20 (individual and private) Northeast Maryland Waste Disposal Authority 25 South Charles Street, Suite 2105 Baltimore, Maryland 21202 410 333-2730

## The Consumer's Handbook for Reducing Solid Waste

August 1992, 36 pp, no charge EPA Document No. 530-K-92-003 U.S. Environmental Protection Agency 401 M Street, SW. (5305 W) Washington, DC 20460 800 424-9346

#### **Environmental Shopping Guide**

June 1992, 26 pp, \$5 Pennsylvania Resources Council, Inc. 3606 Providence Road Newtown Square, Pennsylvania 19073 610 353-1555 This version of the above-referenced manual includes information for a national audience. It discusses the principles behind the need to buy recycled goods, and the strategies for doing so. It contains a large list of suppliers of environmentally preferable products, reprints of EPA Fact Sheets on the procurement guidelines, and includes a brief discussion of waste reduction.

This booklet describes many waste reduction steps the consumer can take in the course of everyday living. It encourages the consumer to make a positive contribution toward the problem of disposing of waste. It includes the nine lives of a peanut butter jar, and many other creative reuse suggestions, as well as suggestions for recycling.

This document is designed to promote buying products packaged in recycled or recyclable materials that are not harmful to the environment. The kit includes a recycling fact sheet, sample press release, and suggestions for modifying shopping habits.

#### King County Home Waste Guide: A Home Tour Through the World of Waste Reduction and Recycling

1990, 40 pp, no charge King County Solid Waste Division Department of Public Works 400 Yesler Way, Room 600 Seattle, Washington 98104 206 296-4352

#### Leave Less Bebind for the Future

*Campaign: Research Findings* 1993, 197 pp, no charge California Integrated Waste Management Board Public Education and Assistance Section 8800 Cal Center Drive Sacramento, California 95826 916 255-2200

#### Minnesota's Consumer Handbook to Reducing Waste

March 1993, 39 pp, no charge Waste Education Clearinghouse Office of Environmental Assistance 520 Lafayette Road North, 2nd Floor St. Paul, Minnesota 55155-4100 612 215-0232

#### Promoting Source Reduction and Recyclability in the Marketplace, Executive Summary

September 1989, 144 pp, \$35 NTIS Document No. PB90-163-122 National Technical Information Service 5285 Port Royal Road Springfield, VA 22161 800 553-6847

#### SMART (Saving Money and Reducing Trash) Holiday Shopping and School Shopping

1992, 1 p each, no charge Waste Education Clearinghouse Office of Environmental Assistance 520 Lafayette Drive North, 2nd Floor St. Paul, Minnesota 55155 612 215-0232 This guide is designed to help measure the current disposal habits of King County citizens and recommend ways to reduce the amount of waste they generate. The guide includes a home quiz with tips on waste reduction and recycling; a resource catalog that lists contacts for more details on waste reduction and recycling; and a checklist that explains how to reduce, reuse, recycle, and compost.

This packet is the printed material from an educational campaign for reduction and recycling of waste. Research findings, consumer guides, and promotional materials were originally included, although only the research guide is currently available. There is limited information on source reduction.

This handbook contains a description of the solid waste crisis, and how reducing, reusing, and recycling can help alleviate the problem. Each "R" is described and examples are provided for implementing it. A chart is included, comparing products with more and less packaging, and the cost and waste savings gained by buying products with less packaging. The handbook also includes a solid waste glossary.

This book explores existing research, surveys, and consumer-oriented education programs showing how consumers, through their purchasing decisions, can promote source reduction and recyclability. Strategies that can be successful in stimulating household demand for environmentally preferable products and packages are identified. The book states that definitions, labeling, and other important messages must be standardized and well-publicized so that they are readily recognized and understood by the consumer.

These pamphlets contain examples of products that have minimal packaging, and list the cost savings and waste reduced by buying one type of packaging over another. Reuse ideas are also presented. About one-half of household waste comes from the packaging of products. Through "SMART" shopping, consumers can save money and reduce waste.

#### Solid Waste Source Reduction Education Program

1992, 150 pp, no charge Environmental Services Department City of Greensboro P.O. Box 3136 Greensboro, North Carolina 27402 Attn: Jerry Bulla 910 373-2867 This document describes a research project that shows how residential solid waste generation rates are affected by differing education levels. A similar study was conducted on the business community in the second phase of the project. Overall results were substantial and positive.

#### The Three Rs: A Helpful Guide to

*Improving the Environment* 1993, 23 pp, \$0.25 DuPage Environmental Awareness Center P.O. Box 3200 Lisle, Illinois 60532 708 719-2452

#### You Can Cut It! A Complete Guide to Reducing Indiana's Solid Waste at the Source

October 1993, 148 pp, no charge Indiana Department of Environmental Management Indiana Recycling Coalition P.O. Box 6015 105 South Meridian Street Indianapolis, Indiana 46206-6027 800 451-6027 This pamphlet provides a brief description of how to recycle, buy recycled products, reduce waste, and implement these ideas in a community and workplace. The pamphlet includes short case studies, charts of plastic types and waste reduction options, questions and answers, and steps for starting a program.

This guide gives tips to help businesses, industries, institutions, and citizens change habits that can cause excessive waste generation. The guide is divided up into sections pertaining to each of the above audiences, and offers explanations, strategies, fact sheets, and information on conducting education campaigns.

# **Toxic Materials in the Waste Stream**

**Characterization of Products Containing** Lead and Cadmium in Municipal Solid Waste in the United States, 1970 to 2000, Final Report, Executive Summary January 1989, 44 pp, no charge EPA Document No. 530-SW-89-015C U.S. Environmental Protection Agency 401 M Street, SW. (5305 W) Washington, DC 20460 800 424-9346 and Characterization of Products Containing Lead and Cadmium in Municipal Solid Waste in the United States, 1970 to 2000, **Final Report** January 1989, 200 pp, \$47.50 NTIS Document No. PB89-151-039 National Technical Information Service 5285 Port Royal Road Springfield, VA 22161

800 553-6847

800 553-6847

Characterization of Products Containing Mercury in Municipal Solid Waste in the United States, 1970 to 2000, Final Report, Executive Summary March 1992, 23 pp, no charge EPA Document No. 530-S-92-013 U.S. Environmental Protection Agency 401 M Street, SW. (5305 W) Washington, DC 20460 800 424-9346 and Characterization of Products Containing Mercury in Municipal Solid Waste in the United States, 1970 to 2000, Final Report March 1992, 115 pp, \$35 NTIS Document No. PB92-162-569 National Technical Information Service 5285 Port Royal Road Springfield, VA 22161

This report characterizes the sources of lead and cadmium in products disposed of in municipal solid waste between 1970 and 1986, with projections to the year 2000. Lead-acid batteries are the largest sources of lead in the waste stream and are projected to increase steadily between 1970 and 2000. Other lead sources, such as lead solder in cans and lead in pigments, virtually disappeared between 1970 and 1986. Discards of nickel-cadmium household batteries increased dramatically after 1970. The report also discusses the recycling potential for both types of batteries.

This report identifies the products in municipal solid waste that contain mercury, and quantifies the mercury present in these products. Discarded household batteries are classified a major source of mercury, while light bulbs, paint residues, thermometers, thermostats, and pigments are less intensive sources of mercury in municipal solid waste. A Database of Safer Substitutes for Hazardous Household Products - Phase One Report

Philip Dickey July 1990, 81 pp, \$5 Washington Toxics Coalition 4516 University Way, NE. Seattle, Washington 98105 206 632-1545

#### A Database of Safer Substitutes for Hazardous Household Products - Phase Two Report

Philip Dickey March 1991, 108 pp, \$5 Washington Toxics Coalition 4516 University Way, NE. Seattle, Washington 98105 206 632-1545

#### A Database of Safer Substitutes for Hazardous Household Products - Phase Three Report

Philip Dickey October 1992, 41 pp, \$5 Washington Toxics Coalition 4516 University Way, NE. Seattle, Washington 98105 206 632-1545

#### Tackling Toxics in Everyday Products:

A Directory of Organizations Nancy Lilienthal, Michele Ascione, and Adam Flint 1992, 192 pp, \$19.95 INFORM, Inc. 381 Park Avenue South New York, New York 10016-8806 212 689-4040 This report is the first of three studies investigating the environmental hazards associated with the use of pesticides, solvents, and some cleaning products. Phase I focuses on laundry detergents. It reveals that powdered laundry detergents were significant sources of arsenic in wastewater. The level of arsenic in detergents was found to generally correlate with phosphate content.

Phase II of this three-part report investigates the environmental hazards associated with the use of dishwashing detergents, bleaches, general purpose cleaners, scouring powders, and toilet bowl cleaners. Study results indicate that automatic dishwashing detergents and powdered bleaches contribute arsenic to wastewater. These household products do not appear to contribute other metals to any significant extent, however.

This third report in the series investigates metals in the residential waste stream from cosmetics, tap water, human wastes, and household soil generated through common cleaning activities. The analysis of tap water is based on data from the Seattle Water Department. The incidence of metals in human waste was investigated by searching medical literature for established data on metals in urine and feces.

This guide provides information about the problems caused by products containing toxic chemicals. It discusses indoor air pollution, smog, water, and air pollution from the disposal of household hazardous wastes. It presents examples of products containing toxic constituents and suggests less toxic alternatives. It discusses policies and research needed to address this issue based on the results of a nationwide survey. The directory also includes an extensive listing of organizations and government agencies working to prevent and alleviate problems caused by toxic chemicals in products.

# Variable Rates/Unit Pricing

#### An Assessment of Unit Pricing for Municipal Solid Waste

A Report for the Pennsylvania Joint Legislative Air and Water Pollution Control and Conservation Committee Tony M. Guerrieri September 1994, 15 pp, no charge Pennsylvania House of Representatives House Box 202254 Harrisburg, Pennsylvania 17120 717 787-7570

#### Charging Households for Waste Collection and Disposal: The Effects of Weight or Volume-Based Pricing on Solid Waste Management

P. Kaldijian U.S. Environmental Protection Agency NTIS Document No. PB91-111-484 September 1990, 100 pp, \$26 National Technical Information Service 5285 Port Royal Road Springfield, Virginia 22161 800 553-6847

#### Garbage by the Pound: On the Streets

Lisa Skumatz, Hans Van Dusen, Jennie Carton January 1995, 13 pp, \$16.50 Reason Foundation 3415 South Sepulveda Boulevard, Suite 400 Los Angeles, California 90034 310 391-2245

#### Garbage by the Pound Pilot Project

*Summary* April 1991, 48 pp, no charge City of Seattle Solid Waste Utility 710 2nd Avenue, Suite 505 Seattle, Washington 98104 206 684-7680 This report discusses Pennsylvania's approach to unit pricing. The state encourages localities to use unit pricing to reduce the waste stream, in order to reach the statewide goal of recycling 25 percent of the waste stream by 1997. The report examines eight unit pricing communities, six of which had recycling rates greater than the statewide average of 16 percent, and seven of which had annual per capita waste generation rates below the state average of 0.8 tons.

This report examines the effects of unit pricing on waste generation, household waste disposal behavior, and waste management costs. It also examines particular features of unit pricing and its interaction with other programs that divert materials from the waste stream. The report discusses case studies solid waste systems in Seattle, Washington, Perkasie, Pennsylvania, and Ilion, New York.

This paper discusses the use of variable-rate pricing for residential waste disposal. By basing the trash service fees on the weight of waste being disposed of, residents are encouraged to reduce their waste generation. The paper includes the results of studies on incentive systems in various communities across the country.

This report discusses a one-year pilot study, from February 1990 to February 1991, that tests a weight-based unit pricing system for municipal garbage collection. The report relates the results of economic, labor, and human error analyses. The EPA-funded unit pricing test appeared to lower the amount of garbage put out for collection by 15 percent during the pilot, and 60 percent of the residents in the study said that they were satisfied with the system.

#### Garbage, Recycling, and Illicit Burning or Dumping

Don Fullerton and Thomas Kinnaman Working Paper #4374 May 1993, 50 pp, \$5 National Bureau of Economic Research 1050 Massachusetts Avenue Cambridge, Massachusetts 02138 617 868-3900

#### Household Demand for Garbage and Recycling Collection with the Start of a Price Per Bag

Don Fullerton and Thomas Kinnaman Working Paper #4670 March 1994, 50 pp, \$5 National Bureau of Economic Research 1050 Massachusetts Avenue Cambridge, Massachusetts 02138 617 868-3900

#### Mandates or Incentives? Comparing Packaging Regulations with User Fees for Trash Collection Lynn Scarlett

Publication No. 158 May 1993, 32 pp, \$18 Reason Foundation 3415 South Sepulveda Boulevard, Suite 400 Los Angeles, California 90034 310 391-2245

#### Pay-As-You-Throw: Lessons Learned

About Unit Pricing April 1994, 85 pp, no charge EPA Document No. 530-R-94-004 U.S. Environmental Protection Agency 401 M Street, SW. (5305 W) Washington, DC 20460 800 424-9346 This paper is an analysis of an economic model of household waste disposal behavior. The model shows that a unit-based fee would lead to some burning or dumping, whereas a disposal tax on products, coupled with rebates for proper waste disposal, would encourage legal disposal of garbage. The study is purely theoretical and involves no empirical data.

This paper gives the results of a Charlottesville, Virginia, study that measured household garbage generation before and after the city implemented a unit pricing system. The survey found that recycling increased 15 percent, waste volume fell 37 percent, and waste weight fell 14 percent. The survey also showed that illegal dumping accounted for about 28 percent of the total reduction.

This booklet examines two approaches being considered by Massachusetts for solid waste management. The first would impose regulations for a statewide initiative to require specific recycled-content levels for consumer products and require the use of reusable, reduced, or recycled packaging. The alternative to this plan is to put in place a unit pricing system, which would create a market-based incentive to accomplish similar goals.

This document describes the advantages and potential barriers to unit pricing systems. It provides practical, proven stategies and advice to solid waste officials to help them decide if unit pricing could work in their communities. It reviews program options, explains the types of waste containers typically used, the different ways to structure a billing system, and other important choices. It also provides a six-step process showing how to estimate the amount of waste a community would produce under unit pricing, create a rate structure, and estimate the resulting revenues. Case studies and answers to commonly asked questions about unit pricing programs are also included.

#### A Primer on Variable Rate Pricing for Solid Waste Services

June 1994, 25 pp, no charge U.S. Conference of Mayors 1620 I Street, NW. Washington, DC 20006 Attn: Reginald Lawson 202 293-7330

#### Solid Waste Management: Planning

Issues & Opportunities Robert Gottlieb, Gary Davis, and Sidney Wolf 1990, 71 pp, \$15 American Planning Association 1313 East 60th Street Chicago, Illinois 60637 312 431-9100

#### State Solid Waste Policy Report: A Focus on Greater Minnesota

November 1992, 166 pp, no charge Minnesota Office of Environmental Assistance 520 Lafayette Road North, 2nd Floor St. Paul, Minnesota 55155-4100 612 296-3417

#### Unit Pricing: Providing an Incentive to Reduce Municipal Solid Waste

EPA Document No. 530-SW-91-005 February 1991, 12 pp, no charge U.S. Environmental Protection Agency 401 M Street, SW. (5305W) Washington, DC 20460 800 424-9346

# User Fee Potential for Proprietary Activities

David S. Hasson (presented to the Association of Washington Cities 1991 Annual Convention, Spokane, Washington) June 1991 CH2M Hill 825 Northeast Multnomah, Suite 1300 Portland, Oregon 97232 503 235-5000 This introductory brochure is written for municipalities that are considering a unit pricing system. It gives tips on how to start a successful program, and addresses implementation issues. The brochure discusses the various mechanisms that can be used and the pros and cons of each one.

This report examines solid waste management options, examples of solid waste legislation, and case studies on various communities, such as Seattle, Washington, Perkasie, Pennsylvania, Queen Village in Philadelphia, Pennsylvania, and North Hempstead, New York. It also discusses waste stream composition.

This report is a review of Minnesota's waste management system in which unit pricing is mentioned briefly. St. Louis Park, a unit pricing community, is discussed. The report examines historical and contemporary statewide programs, county initiatives, industrial and residential waste generation trends, waste collection and transportation systems, and collection system costs.

EPA published this informational brochure for any city solid waste manager interested in unit pricing methods for municipal solid waste collection. The brochure describes unit-based pricing and the economic theory behind it. It discusses the potential benefits of unit pricing, including reduced waste generation, extended landfill life, reduced labor costs for collection, greater recycling participation, and increased resource conservation.

This discussion outlines the primary issues involved in the implementation of both user fees and disposal taxes. During this period of increased concern about property taxes and revenues needed for government services, municipalities are turning to user fees to meet revenue needs. Charging user fees for proprietary activities has been common, but tax revenues also have been used.

#### Variable Rate Pricing: A Practical Guide for Local Decisionmakers

Mark Lennon and Lisa Skumatz May 1995, 85 pp, no charge Coalition of Northeastern Governors 400 North Capitol Street, NW. Washington, DC 20001 202 624-8450

#### Variable Rates for Municipal Solid Waste: Implementation Experience Economics and Legislation

Lisa Skumatz Publication No. 160 June 1993, 43 pp, \$18 Reason Foundation 3415 South Sepulveda Boulevard, Suite 400 Los Angeles, California 90034 310 391-2245

#### Variable Rates in Solid Waste: Handbook for Solid Waste Officials — Volume I -Executive Summary

Lisa Skumatz and Čabell Breckinridge City of Seattle Engineering Department, Solid Waste Utility 1990, 45 pp, \$26 NTIS Document No. PB90-272-055 and Variable Rates in Solid Waste: Handbook for Solid Waste Officials — Volume II -Detailed Manual

1990, 309 pp, \$62.50 NTIS Document No. PB90-272-063 National Technical Information Service 5285 Port Royal Road Springield, Virginia 22161 800 553-6847 This workbook is designed to assist in the evaluation, planning, and implementation of variable rate pricing for solid waste management services. It walks the reader through planning, budgeting, selling the program, implementation, and operational concerns. The workbook also includes worksheets and exercises to familiarize readers with the process of implementing a unit pricing program. The appendices discuss illegal dumping, multifamily dwellings, seasonal populations, and bag-distribution issues.

This booklet examines the economics, mechanics, and politics of unit pricing systems. The author shows the different ways in which unit pricing programs can be run, comparing bags, tags, and prescribed cans; private and public hauling; and complementary programs like composting and services for multi-unit housing. The author discusses policies of various states that require or encourage unit pricing, and steps for evaluating a program's performance.

This manual describes an alternative to traditional source reduction methods: charging user fees at variable rates for solid waste collection and disposal services. Variable can rates or bag/tag systems offer a number of advantages over traditional solid waste funding mechanisms: they give customers control over the bill, provide incentives for waste reduction and recycling, can lead to system savings, can be implemented more quickly than capital investments, and can be implemented in different situations. Whatever You Call It, It Works... Unit-Based Pricing for Solid Waste Management: A "How To..." Manual for New Hampshire Communities Mark Lennon May 1994, 35 pp, \$10 New Hampshire Department of Environmental Services c/o Joyce Perrault 6 Hazen Drive P.O. Box 95 Concord, New Hampshire 03302-0095 603 271-3503 This manual was written to help solid waste managers and operators in New Hampshire muncipalities to evaluate, plan, and implement unit-based pricing programs. The document covers planning, budgeting, selling the program to residents and officials, implementation, and operational concerns.

Wisconsin Volume Ba\$ed Rate Collection Guide: Economic Incentives for Source Reduction and Recycling

Sherri Gruder, Shannon Green, Linda Schuerman November 1993, 62 pp, \$10 University of Wisconsin—Extension Solid & Hazardous Waste Education Center 610 Langdon Street, Room 529 Madison, Wisconsin 53703 608 262-0385 (no phone orders) This guide presents materials that can be used to plan and implement, or to redesign, volume based rate (VBR) solid waste collection programs. It contains information about the feasibility of implementing VBRs from the political, staff, and resident perspectives; VBR program design options; and specific programs used by more than 200 communities in Wisconsin.

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