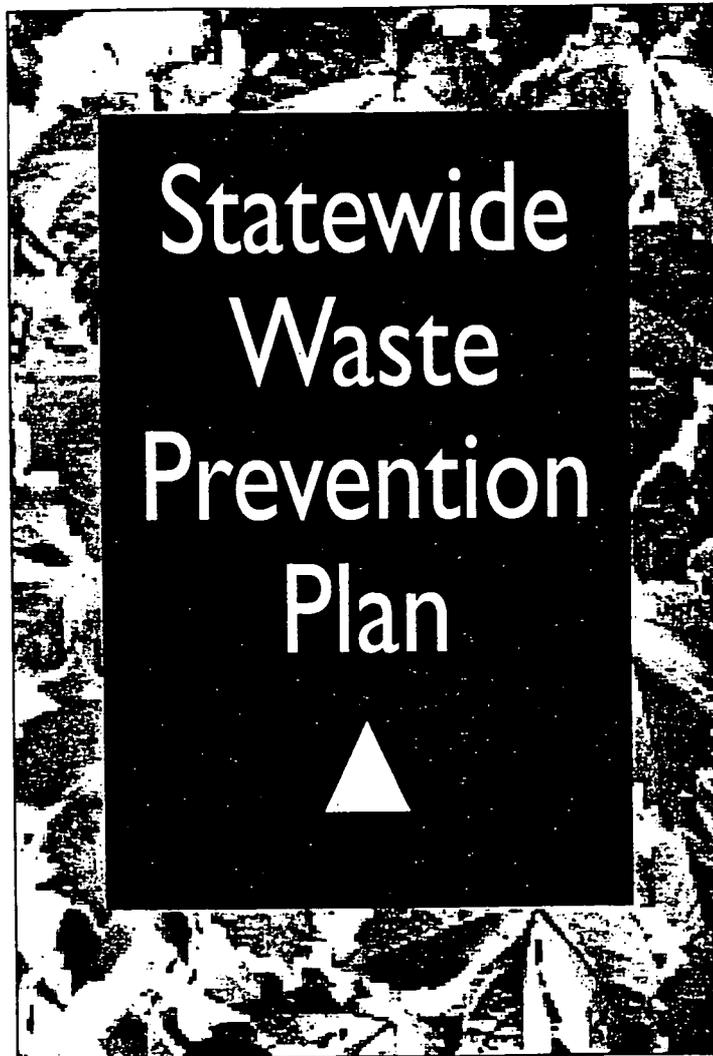




California
Integrated
Waste
Management
Board



Report to
the Legislature

May
1993

State of California



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Table of Contents



	Page
Introduction.....	1
Waste Prevention: A Definition.....	3
Where Waste Prevention Occurs.....	5
Methodology.....	5
Trends.....	7
Trade-Offs.....	12
Priority Activities.....	13
Provisions For Review and Revision.....	22
Glossary.....	23

Appendices

Appendix A	Summary of Other Activities.....	25
Appendix B	Current Waste Prevention Related Activities.....	33
Appendix C	Barriers to Waste Prevention.....	41
Appendix D	Overall Ranking of Activities.....	43

Tables

Table 1	Resources Used Through Reduction Activities.....	2
Table 2	Mission, Goals, & Priorities.....	4
Table 3	Where Waste Prevention Occurs & Who is Responsible.....	6
Table 4	Key Products/Materials Discarded Nationwide.....	8
Table 5	Categories of Products Discarded in MSW 1960-1990.....	10
Table 6	Nationwide Discards of Mercury in Key Products.....	11
Table 7	Nationwide Discards of Lead in Key Products.....	11
Table 8	Nationwide Discards of Cadmium in Key Products.....	11
Table 9	Summary of Other Activities.....	25



California law defines the act of preventing waste as source reduction. The combined experience of other states and groups indicates that it is easier for people to understand the term, "waste prevention." For this reason, waste prevention will be used throughout this document.

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 (IWM) hierarchy.¹

All of us can play an important role in conserving our natural resources. Whether at home, work, or elsewhere, waste prevention is something we can all practice. Ideally, individuals, organizations, and businesses should eliminate waste wherever possible in the products or packaging we buy, use, make, or sell. Table 1 illustrates waste prevention approaches in terms of resources used. Eliminating the use or need for an item requires no resources; reducing use requires fewer resources than recycling because of

the handling and processing activities associated with recycling.

Waste prevention reduces waste management costs and pollution generated by collecting, processing, recycling, incinerating, and land-filling discards. Furthermore, it conserves landfill space and can add years to the expected lifespan of a landfill.

The goal of waste prevention is not to discourage economic activity or job creation. It is aimed at encouraging production processes and consumer choices that are efficient and conserve resources.

Waste prevention 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 refinishing old doors for remodeling projects, using odds and ends in sculptures and stage sets, and manufacturing used sails into cloth bags and clothing.

Although waste prevention offers great potential to reduce waste, it is a relatively underdeveloped approach, 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.

Consequently, to encourage widespread understanding and action, the state Legislature

TABLE 1: Resources Used through Reduction Activities

RESOURCES USED					
Waste Prevention					Recycling/ Off-site Composting
Eliminate	Reduce				
Eliminate items	Manage organic materials on-site	Accomplish a task with less material or toxic substance	Improve product longevity	Use products more than once	Collect, process, and reuse item
<i>Using electronic mail</i> <i>Purchasing goods without packaging</i> <i>Deciding not to purchase an item</i> <i>Stopping junk mail</i> <i>Using a solar-powered calculator</i>	<i>Grasscycling</i> <i>Practicing backyard composting</i> <i>Composting at home, school or work with worms</i>	<i>Making thinner containers</i> <i>Using both sides of paper</i> <i>Purchasing products with minimal packaging</i> <i>Substituting less toxic materials for more toxic ones</i>	<i>Purchasing longer lasting light bulbs</i> <i>Creating products that are easy to disassemble and upgrade or repair</i> <i>Maintaining equipment</i>	<i>Using washable cups and plates</i> <i>Using reusable air filter frames</i> <i>Reusing envelopes</i>	<i>Using refillable bottles</i> <i>Building with refinished doors</i> <i>Donating unneeded items</i> <i>Collect, transport, and process goods into new raw material, then use in new product</i>

Note: Table 1 is intended to demonstrate overall resource use with various options. Specific examples may use more or less resources than what is suggested above.

mandated the California Integrated Waste Management Board (CIWMB) to develop strategies to promote waste prevention.

The CIWMB is responsible for developing strategies to promote waste prevention efforts within the public and private sectors [Public Resource Code Section 40507(f)] and is required to make recommendations for: 1) legislative actions to promote waste prevention; 2) actions to improve packaging and product design; 3) actions to develop and implement product durability standards; and 4) actions to reduce toxicity of packaging and products.

This Statewide Waste Prevention Plan was prepared in response to this mandate. Table 2 lists the mission statement and goals that were used as a framework to develop the plan and summarizes the priority activities identified in it. Implementing these activities will advance waste prevention throughout California and acknowledge its placement at the top of the IWM hierarchy.

Waste Prevention: A Definition

A key barrier to waste prevention is understanding what it means. This report addresses the problem in two important ways.

- 1) The term "waste prevention" replaces source reduction throughout the document. The combined experience of other states and groups indicates that it is easier for people to understand the term, waste prevention. Therefore, it is recommended that the CIWMB adopt the term waste prevention as being synonymous with source reduction.
- 2) An alternative definition to the one in the statute is presented.² This definition presented below: highlights the role of individuals as well as organizations; clearly states that waste prevention occurs before anything enters the waste stream; and addresses the question of the overall environmental impacts. It is recommended the CIWMB adopt the following definition:

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.

An additional source of confusion is determining where some activities (i.e., reuse, backyard composting, and xeriscaping) fit into the waste management hierarchy. If a product is reused, it is considered waste prevention. For instance, an individual reusing a cloth bag when shopping or reupholstering a couch instead of sending it to the landfill prevents waste. The CIWMB also recognizes backyard composting as waste prevention because yard trimmings are managed on-site and do not enter a collection system. Xeriscaping, the practice of landscaping with slow growing, drought-tolerant plants is considered waste prevention because it reduces yard trimmings.

Table 2:

Mission, Goals & Priorities (Goals are of equal value)

Mission

Provide leadership that fosters waste prevention and creates a statewide infrastructure to reduce the generation and toxicity of solid waste. This effort is intended to conserve natural resources and promote a sustainable economy for the State of California.

Goal 1.

Create Awareness and Encourage Individuals to Incorporate Waste Prevention Practices into Daily Activities

- a. Develop Outreach Materials for the General Public.
- b. Conduct a Statewide Waste Prevention Education & Outreach Campaign.

Goal 2:

Acquire Basic Information About the Effectiveness of Waste Prevention Approaches Needed to Initiate Efforts

- a. Conduct Primary Research, Including a Methodology for Quantifying Waste Prevention.
- b. Conduct Case Studies/Demonstration Projects.

Goal 3:

Build or Expand Communication Networks Within and Across the CIWMB, Other State Agencies, Local Governments, Educational Institutions, Commercial and Industrial Facilities

- a. Establish a waste prevention task force with Representatives from Target Audiences.
- b. Develop a Waste Prevention Clearinghouse Including a Resource Center.
- c. Conduct Workshops and/or Training Seminars.

Goal 4:

Assist Local Governments in Achieving Waste Diversion Mandates through Waste Prevention

- a. Divert Grass Clippings from Disposal at Landfills.
- b. Divert Yard Trimmings from Disposal at Landfills.
- c. Set Up Cooperative State & Local Government Purchasing Program.

Goal 5:

Encourage Waste Prevention Within Organizations: State/Local Governments, Institutions, Universities and Schools, and Businesses

- a. Create Model Waste Prevention Program at CIWMB.
- b. Educate Top Management about Benefits of Waste Prevention.
- c. Give Awards to a Few Outstanding Waste Prevention Programs.

Goal 6:

Develop Incentives and Assistance to Encourage Design, Manufacture, Distribution, Sales and Reuse of Products or Packaging that Decrease the Amount or Toxicity of Waste Generated

- a. Provide Cooperative Technical Assistance.
- b. Develop Guidelines for Reusing, Upgrading, and Making More Durable Products.
- c. Expand Materials Exchange and Reuse Through CALMAX.

Where Waste Prevention Occurs

As illustrated on Table 3, waste prevention can be practiced by manufacturers, commercial businesses, governments, institutions and residences at various stages in the flow of materials and products, ranging from product design to on-site composting. However, it is individual initiative that spurs waste prevention at each stage. At every level of a process, an individual should ask "Where can I eliminate or reduce the amount or toxicity of material used to accomplish this task?"

To prevent waste, an individual should evaluate the options to determine the most resource-efficient way to use an item or perform an activity. Waste prevention is unique in this regard; dealing with the cause of waste, not the effect, sets it apart from other waste management approaches. For example, an individual could use both sides of the paper instead of one side, distribute information by voice mail or electronic mail instead of memos, or substitute less toxic cleaning solutions for more toxic solutions.

Manufacturers have the opportunity through their design and production processes to have a great impact on waste prevention. This is because once a product is created, many of its characteristics are fixed. For example, when a product is made using less materials, consumers can practice waste prevention without changing behavior. The reverse is also true, if a product is designed so it cannot be repaired, when the product breaks it will probably be discarded.

While manufacturers are able to design products, packaging and materials more efficiently, they are unlikely to do so without consumer demand for

source-reduced items. Individuals, governments, commercial businesses and institutions play an important role by creating demand for source-reduced materials, products, and packaging in their purchasing decisions. For example, shoppers and purchasing agents can purchase goods with minimal or no packaging, longer lasting products, or products that are easy to repair. Purchasing agents also have the opportunity to team up with suppliers to find practical and innovative ways to reduce or eliminate packaging. These are just a few waste prevention activities that can be practiced at the consumer level.

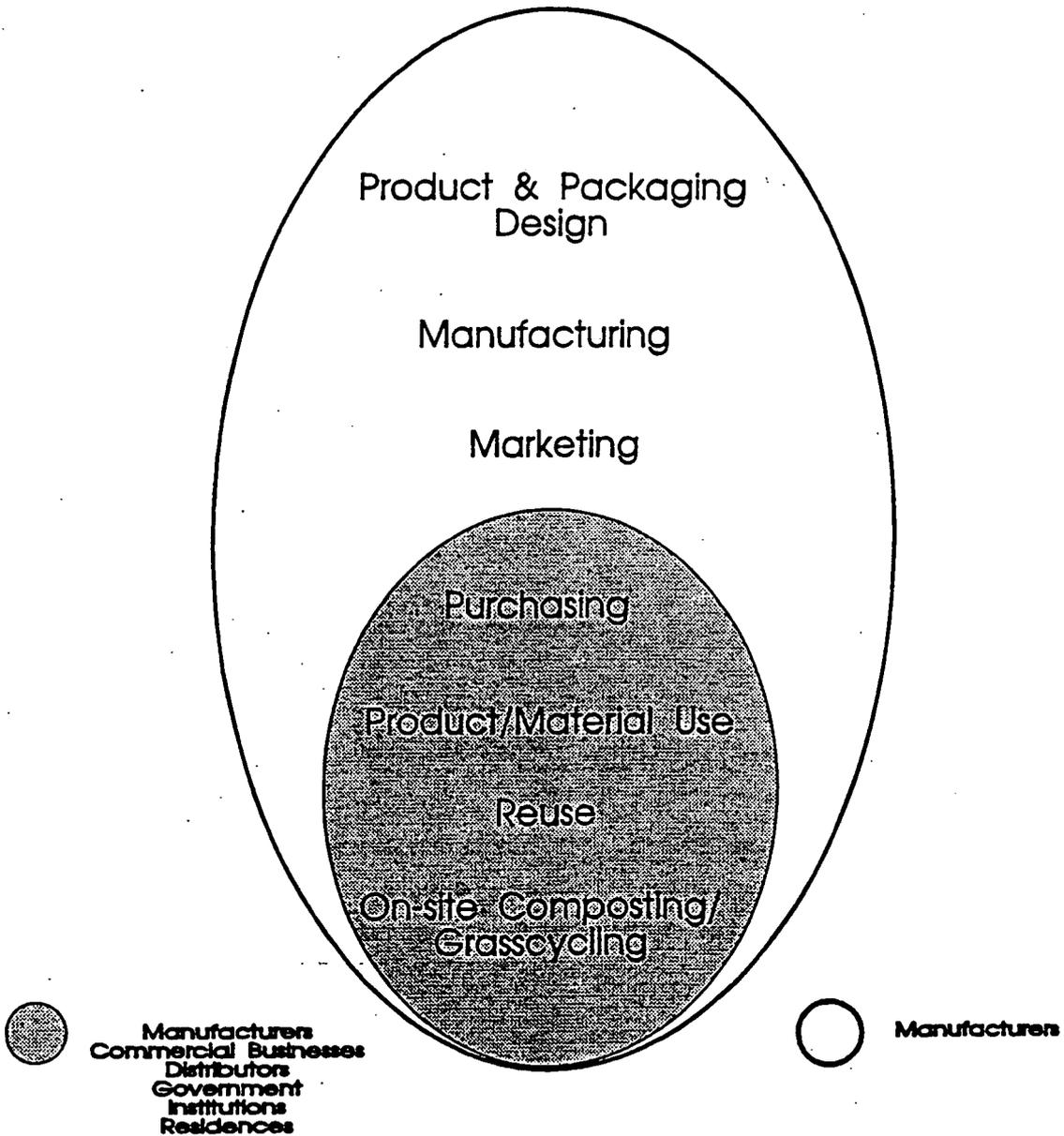
Finally, many manufacturers, commercial businesses, distributors, governments, institutions, and residents can practice on-site composting and grasscycling. Such efforts can make a significant reduction in total waste generation, since yard trimmings comprise about 14 percent of the waste stream. Additionally, on-site composting and grasscycling reduce waste management costs since yard trimmings are not collected for disposal or transported to a central composting facility.

Methodology

Although waste prevention is the highest priority in the waste management hierarchy, local governments and businesses have focused much of their effort on recycling. To determine what prevents program administrators from developing waste prevention programs, and what activities the CIWMB could undertake to facilitate implementation of waste prevention programs, the CIWMB conducted extensive research.³

Table 3

Where Waste Prevention Occurs and
Who is Responsible



Information was collected using a variety of methods, including literature and program reviews, surveys, interviews, and two symposia focused on waste prevention.

In the process, local government representatives, private sector manufacturers and designers, state regulators, environmental activists, educators, and retailers identified eight overriding barriers. These are listed below; a brief description of each can be found in Appendix C:

- lack of information about waste prevention options and their effectiveness;
- lack of resources (e.g., money, staff);
- difficulty in changing behavior;
- lack of support from top management;
- lack of consumer demand for source-reduced products;
- lack of product/packaging choices;
- legal, policy, and political barriers; and
- difficulty coordinating players and messages.

The CIWMB has identified more than 40 activities that could be implemented to overcome the eight barriers. However, because of limited resources, it is not possible to implement all of the activities identified. Therefore, CIWMB staff developed a ranking system to prioritize activities. The criteria used to score activities were:

- potential impact on the waste stream;
- potential long-term economic savings to society;
- potential costs to CIWMB;
- potential costs to target audience; and
- basic support for other activities.

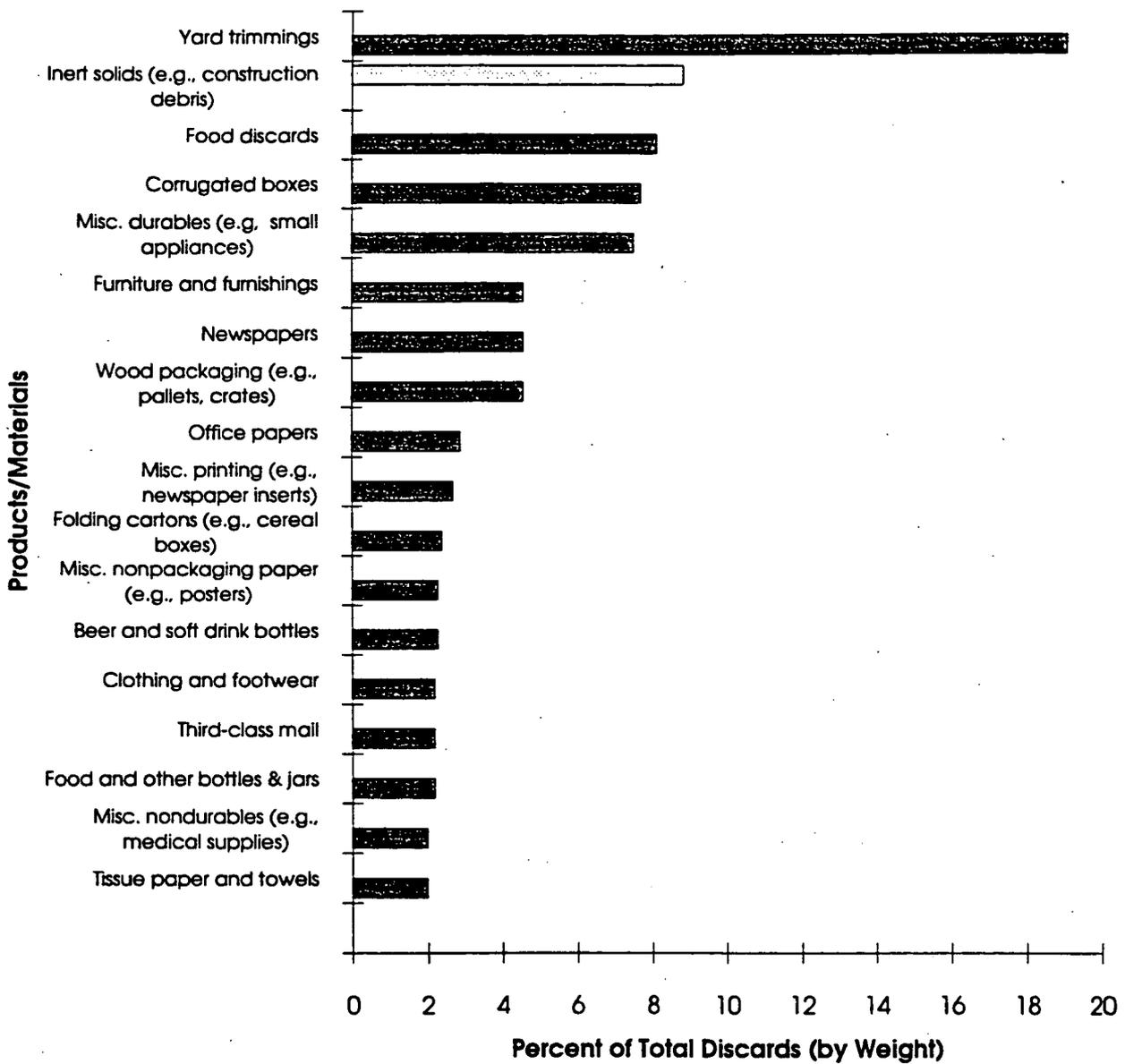
Based on this criteria, the CIWMB identified 16 priority activities, summarized on Table 2 and described in detail beginning on page 13. A description of the other identified activities is included in Appendix A.

Trends

Trends occurring in the waste stream over time help reveal how waste is generated, what products and materials are used and discarded, and who does the discarding. This information is critical to the development and implementation of an effective Statewide Waste Prevention Plan. Trend data can also help inform individuals, organizations, and business about the best ways to eliminate or reduce waste.

Table 4 illustrates the top five products/materials contributing to the waste stream, according to U.S. Environmental Protection Agency U.S. (EPA) data (CIWMB data in the case of inerts): yard trimmings, inert solids, food, corrugated boxes, and miscellaneous durables, such as small appliances and televisions.⁴ There is ample opportunity for eliminating or reducing these products/materials at the source: many residents can manage yard trimmings and some food debris through backyard composting; individuals can shop responsibly and eliminate waste by choosing not to purchase overpackaged items (e.g., bring their own bags); some inerts have the potential to be reused; corrugated boxes can be lightweighted, reused, or replaced with durable reusable products; and durables can be redesigned so they are easy to repair or upgrade, and for increased longevity.

Table 4: Key Products/Materials Discarded Nationwide



Nationwide (U.S. EPA data)
 California (CIWMB data is provided because the U.S. EPA does not include inerts in their analysis)

U.S. EPA data were used because they provide product specific information currently unavailable in California.

Categories of Products

There are three main categories of products analyzed for trends: 1) packaging and containers, 2) nondurable goods, and 3) durable goods. A few of the most dominant trends are highlighted below. Table 5 provides an overview of products discarded in the waste stream between 1960 and 1980.⁵

▲ Packaging and Containers

U.S. EPA data indicate that, by weights, packaging and containers have decreased from 35 percent of discards in 1970 to 29 percent in 1990. This slight downward trend, as shown in Table 5, indicates that the relative weight of packaging has declined over time. This is due to increased packaging efficiency and to the substitution of lighter weight materials, such as plastics and aluminum for glass and steel. Data also indicate that more corrugated boxes are discarded than any other type of packaging, followed by wood packaging.

▲ Nondurable Goods

Table 5 illustrates that nationwide the amount of nondurable goods discarded has doubled since 1970 and continues an upward trend. In 1970 nondurable goods comprised 19 percent, by weight, of discards. This increased to 27 percent in 1990. Items making the largest contribution to the waste stream are paper and paperboard (e.g., newspaper, books and magazines, office paper, telephone books, third-class mail). Items often targeted in waste prevention programs, such as paper and plastic plates and cups, are less than 1 percent of discards.

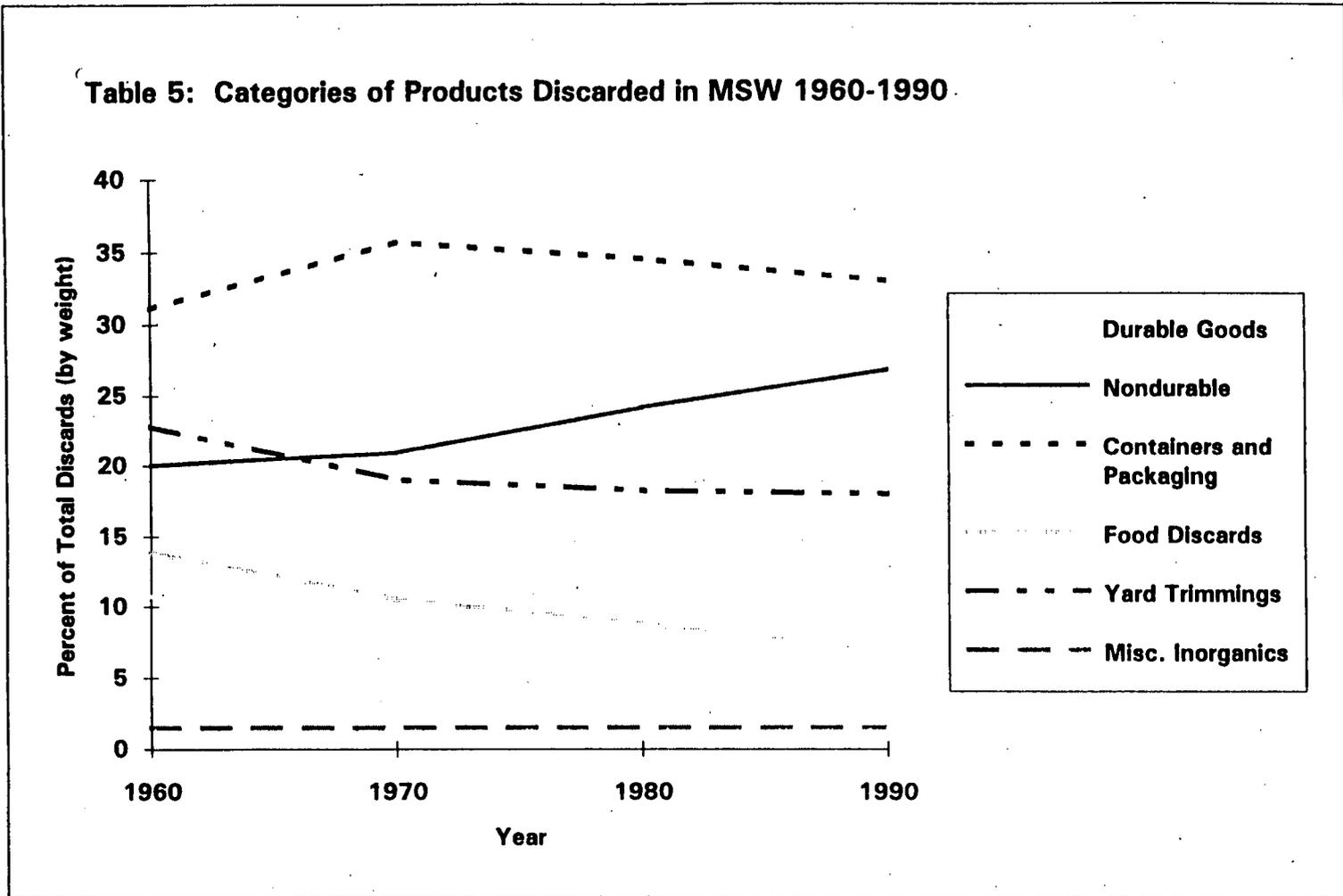
▲ Durable Goods

As shown in Table 5, durable goods comprised about 15 percent of total discards in 1990, a slight increase from 12.5 percent, by weight, in 1970. Miscellaneous durables, such as small appliances, furniture and furnishings, comprise the largest amount of discards in this category. Rubber tires are discarded at much lower rates — 1.6 million tons annually — yet are the focus of waste reduction efforts because they are flammable, attract rodents and mosquitoes, and “float” in landfills unless properly processed.

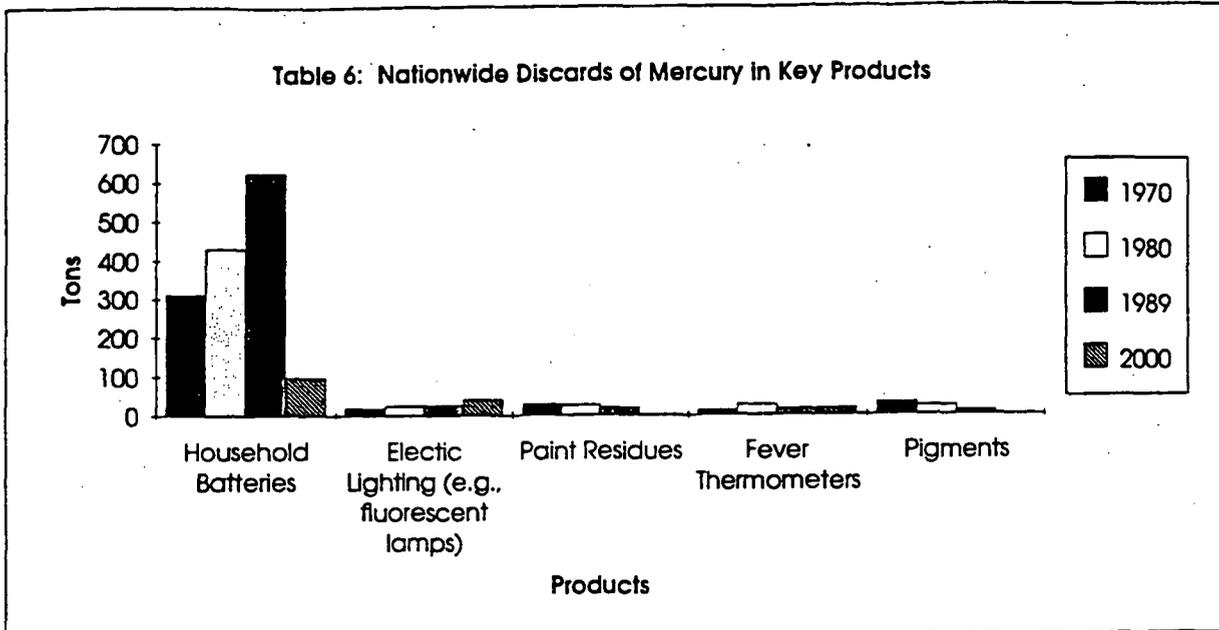
Toxicity

Twenty percent of the sites on the National Priorities List (the U.S. EPA's list of most toxic sites designated for Superfund cleanup) are municipal landfills. Toxics in landfills can cause groundwater and air contamination. Toxic substances contained in discarded products entering waste management systems for recycling or disposal may pose health and safety risks to workers handling the discards. The U.S. EPA has targeted mercury, lead, and cadmium in efforts to reduce toxic materials in municipal solid waste (MSW). Highlights of trends for mercury, lead, and cadmium are described below and illustrated in Tables 6, 7, and 8.

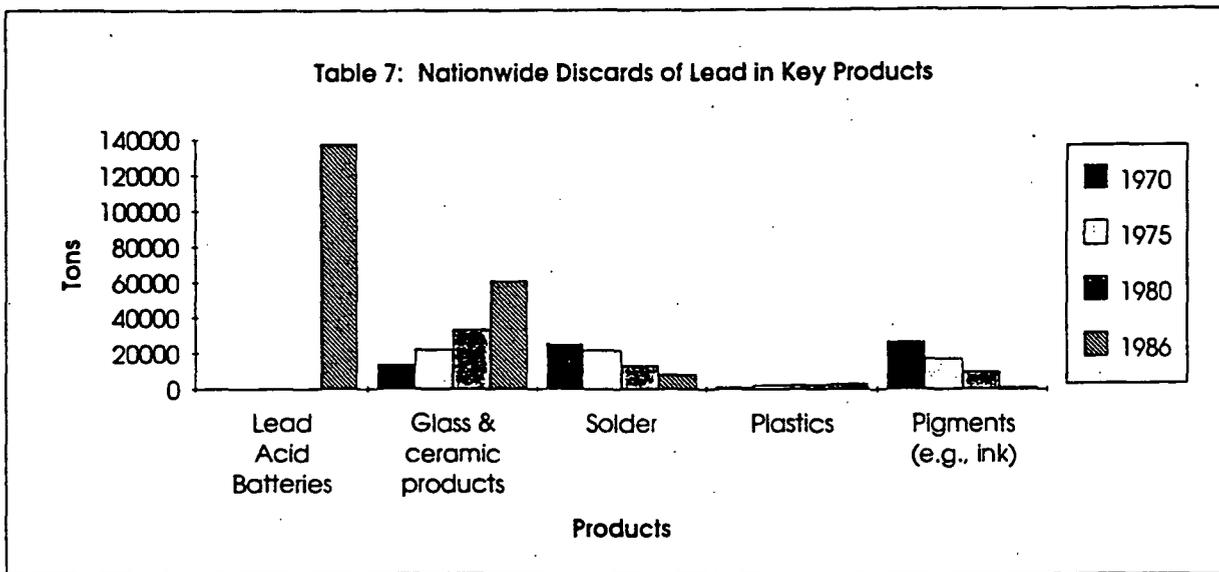
Table 5: Categories of Products Discarded in MSW 1960-1990.



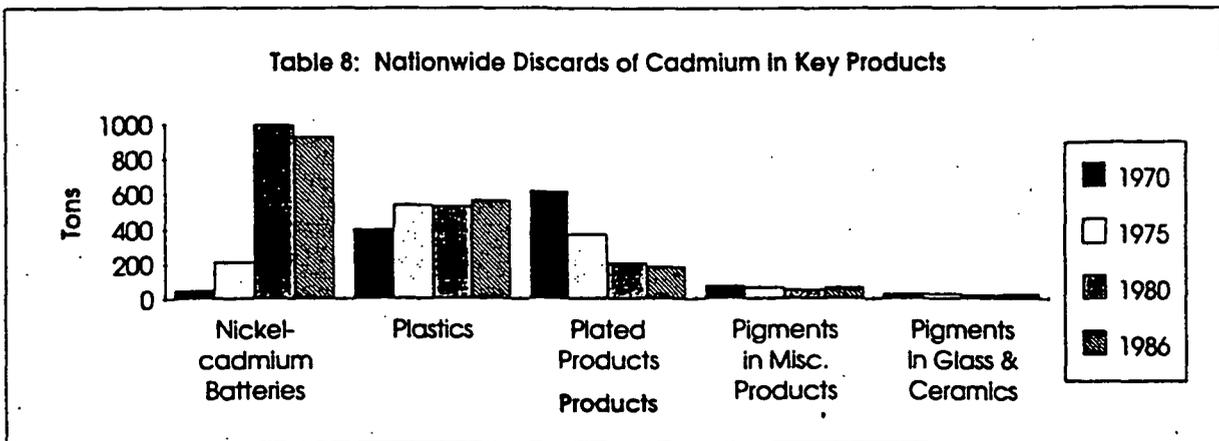
Source: U.S. EPA , "Characterization of Municipal Solid Waste in the United States: 1992 Update."



Source: U.S. EPA, "Characterization of Products Containing Mercury in MSW in the US, 1970 - 2000", April 92.



Source: U.S. EPA, "Preliminary Use and Substitutes Analysis of Lead and Cadmium in Products in MSW," April 92. This report does not indicate the amount of lead acid batteries discarded for 1970, 1975, and 1980.



Source: U.S. EPA, "Preliminary Use and Substitutes Analysis of Lead and Cadmium in Products in MSW," April 92.

▲ Mercury

The top five leading products in MSW shown in Table 6 are: household batteries, electric lighting, paint residues, fever thermometers, and pigments. Mercury in MSW appears to be on a downward trend. This is primarily because of significant reductions of mercury in carbon-zinc and alkaline batteries. Even with less mercury in individual batteries, household batteries are projected to remain the main source of mercury in MSW in the year 2000, followed by mercury in electrical lighting.

The CIWMB recently conducted a study of the disposal and potential recyclability of household batteries. The study identifies hazardous chemicals and characteristics of batteries, discusses safety issues and marketing trends, and provides recommendations for new legislation regarding battery management. It also explores the potential environmental and human health risks related to the illegal disposal of all types of household batteries in the solid waste stream. This study projects that mercury in MSW will continue to decline. Manufacturers have reformulated batteries to use less mercury and will begin to produce mercury-free batteries in the next few years.⁶

▲ Lead

As described in Table 7, the main sources of lead in MSW are: lead-acid batteries, glass and ceramics, solder, plastics, and pigments. Lead-acid batteries and glass and ceramic products are the most significant contributors of lead to the waste stream. Lead-acid batteries are the most common type of rechargeable batteries. However, recycling opportunities are limited, and demand for them is expected to increase

(especially with an increase in electric vehicles).

Consequently, they are expected to continue as a leading source of lead in MSW. Of the 60,714 tons of lead in glass and ceramic discards, 52,000 tons are from discarded television sets. Lead is used to absorb radiation from televisions, and larger televisions contain higher amounts of lead than smaller televisions.

▲ Cadmium

There are a number of sources of cadmium: nickel-cadmium batteries, plastics, plated products, and pigments. As illustrated in Table 8, cadmium in MSW primarily originates from nickel-cadmium batteries and plastics. Nickel-cadmium batteries can be recharged hundreds of times. Their demand is linked to the demand for portable electrical equipment. Cadmium is also used for pigment and as a heat stabilizer in plastics production. As a pigment, cadmium has performance characteristics that are difficult to reproduce and provides a low-cost heat stabilizer, which accounts for its widespread use.

Trade-Offs

Then implementing waste prevention practices there are a number of issues to consider, including the amount of resources used and recyclability. For example, some new forms of packaging are made with less materials but are comprised of several layers of different materials, making recycling difficult.

Trade-offs can also occur when substituting one product for another. In the case of switching from disposable to reusable air filters, water and energy (to heat the water) are needed to clean the

filters. Therefore, local resource availability, such as water, should be considered in the decision making process.

Comparing risks when substituting one toxic substance for another is a difficult issue.

Changes in the amount of toxic materials contained in products, changes in consumer demand, and other factors make it difficult to understand if health risks are increasing or decreasing. For example, rechargeable batteries may create less solid waste than nonrechargeable batteries. However, they are the main source of nickel-cadmium in MSW (see Table 8). This trade-off makes it difficult for government agencies to make recommendations.

Life-cycle analysis attempts to determine which options are preferable and under what conditions. To better understand the trade-offs, industry, academia, and others are attempting to analyze the life-cycle of products (from creation through use and final disposal) in determining the associated resource costs and environmental risks. Currently, the U.S. EPA is attempting to develop a methodology for conducting life-cycle analysis.

Studies presently undertaken suggest that product life-cycle analysis is costly and potentially biased because of selected assumptions; in many cases, results are inconclusive. Although these obstacles exist, a limited version of life-cycle analysis could prove very helpful before embarking on programs to encourage the use of selective products.

Priority Activities

The CIWMB has identified more than 40 activities that could be implemented to overcome barriers previously mentioned (see Methodology section). Of all the activities identified, 16 are designated as top priorities. They are described below and listed in Table 2. The other activities are described in Appendix A. Additionally, Appendix D provides the overall ranking of all activities.

The top 16 activities were selected based on scoring criteria of potential impact on waste stream, potential long-term economic savings to society, potential costs to CIWMB, cost to target audience, and basic support for other activities.

The activities are discussed below within the context of goals. Goals were developed to ensure that major barriers identified would be addressed and that all the major players were targeted, from residents to manufacturers, for prevention activities. These goals are not ranked because they provide the framework for developing a comprehensive waste prevention plan and are considered equal in importance.

Implementing these priority activities will not only advance waste prevention throughout California and acknowledge its placement at the top of the IWM hierarchy, but will also reduce a significant portion of the waste stream, and reducing costs to individuals, businesses, institutions, and governments.

The CIWMB recognizes that there are two key elements to consider when implementing waste prevention programs: 1) eliminating waste is preferred, followed by reducing the amount or toxicity of waste; and 2) the foundation to

implementing any waste prevention program is education. With proper information, individuals will begin to understand that they play an important role in preventing waste, whether at home, work, or elsewhere.

Goal I:

Create Awareness and Encourage Individuals to Incorporate Waste Prevention Practices into Daily Activities

The public is inundated with advertisements enticing them to purchase a variety of products. A well-planned effort to educate the public regarding the definition of waste prevention is necessary if people are to understand the impact of their choices when purchasing goods. For example, shoppers can learn to purchase products with little or no packaging or can write to manufacturers and request that a product be made with less waste. Public demand will encourage manufacturers to produce more source-reduced goods.

Recognizing the importance of education, the CIWMB has embarked on a statewide public education campaign to convince residential consumers that recycling is not enough; that other actions such as reducing the generation of waste, buying recycled or recyclable goods, and reusing materials are needed. In 1992, the CIWMB initiated a statewide public education campaign through a contract with DDB Needham Worldwide, Inc. This effort began with an analysis of consumer attitudes on a full range of IWM issues. The CIWMB determined that the best opportunity to achieve behavioral change was to build upon the momentum of the recycling movement, asking consumers to take

the next step — reduce waste at the source. This long-range effort has a two-pronged approach: an awareness program in two test markets and the development of a public awareness support kit for local governments. (For more information refer to Appendix B.)

To further waste prevention education, the CIWMB selected two activities as high priorities to accomplish this goal: 1) develop outreach materials for the general public; and 2) conduct a statewide waste prevention education and outreach campaign. These activities would build off existing efforts and are described below.

a) Develop Outreach Materials for the General Public

As part of the outreach campaign mentioned above, the CIWMB developed two media kits, one for residential consumers, the other for local governments. The waste prevention kit for the public includes a shopper's guide and waste prevention booklet. The media kit for local governments contains several items including instructions on how to conduct an effective public education program for local governments. (See Appendix B, Outreach to General Public, for additional information.) The CIWMB recently published brochures on composting, grasscycling, and waste prevention. The brochures provide an overview and suggest actions regarding how to become involved.

To complement and build off these initial efforts, the CIWMB would conduct research to determine other types of outreach materials needed by local jurisdictions and then undertake development of these materials. This would prevent duplication of efforts of the same

activities by local governments. Local governments could add their logo and modify CIWMB materials to better meet local needs.

Key Steps:

- identify needs of local jurisdictions and select topics to cover (in progress);
- conduct research, and produce educational materials (in progress);
- disseminate information (in progress); and
- monitor effectiveness, and modify approach if necessary.

b) Conduct a Statewide Waste Prevention Education & Outreach Campaign

As part of the statewide campaign, the CIWMB is also pilot-testing television commercials, radio announcements, and billboards encouraging consumers to purchase products and packaging that have minimal packaging, are recyclable, or are made with recyclable materials. The pilot program will be evaluated and modified, if necessary, prior to conducting a statewide campaign.

To create an awareness of the solid waste problem and highlight individual actions that can be taken to eliminate or reduce waste generation, the CIWMB could expand the public awareness campaign statewide. On-going efforts to inform the public would occur in a series of steps. The statewide campaign would be monitored for effectiveness and revised if necessary as the CIWMB moves into the next level of educating the public on waste prevention.

Key Steps:

- conduct and evaluate pilot outreach program, revise materials if necessary (in progress);
- print and disseminate information statewide; and
- coordinate efforts with local governments.

Goal 2:

Acquire Basic Information About the Effectiveness of Waste Prevention Approaches Needed to Initiate Efforts

During initial research, numerous waste prevention barriers, activities, and examples were identified. However, research also revealed that a number of information gaps exist. Under this goal, the CIWMB would conduct primary research to close the information gap (e.g., potential barriers, legislative mandates developed elsewhere).

The CIWMB would also identify and provide detailed information regarding successful waste prevention approaches through case studies and demonstration projects. In particular, information about cost savings and potential reductions in waste generation is needed by program administrators to gain support of top management and coworkers. If information is to be convincing, it must be derived from reliable sources. Cost savings from waste prevention programs are known to exist in many businesses and can be used to motivate management to practice or implement waste prevention activities.

a) Conduct Primary Research, Including Methodology for Quantifying Waste Prevention

Initial research indicates that information is lacking in a number of areas. First, the CIWMB needs to further investigate several potential barriers to waste prevention, including interstate commerce laws and health and safety laws. The CIWMB would determine the extent to which barriers exist and if necessary, identify corrective strategies.

Second, the CIWMB needs to research various legislative mandates developed elsewhere. In particular, other countries have developed approaches placing greater responsibility on manufacturers and retailers for the waste they generate and for products they produce or sell. Several groups are advocating similar approaches for California. The CIWMB needs to further investigate the implications and potential impacts of such approaches including the possibility of establishing waste prevention for certain types of packaging. Additionally, the CIWMB would evaluate current manufacturer mandates, such as California's Rigid Plastic Packaging Container Act, to monitor progress and evaluate its transferability to other packaging or products (see Appendix B).

Third, the CIWMB needs to conduct waste prevention audits to determine the type and amount of waste created by different businesses. This information can be used to target materials and products for waste prevention efforts.

Fourth, the CIWMB has developed draft quantification guidelines for local governments and businesses and needs to pilot test them.⁷ These guidelines provide methods for measuring avoided waste and cost savings. Program admin-

istrators would use this information for measuring success, and for justifying and/or expanding programs.

Key Steps:

- select research topics;
- develop research methodology;
- conduct research; and
- coordinate with appropriate groups.

b) Conduct Case Studies/Demonstration Projects

To accomplish this, the CIWMB would conduct case studies that promote waste prevention within specific sectors and conduct demonstration projects that focus on specific waste prevention strategies (e.g., educational approaches) and products. For each study and project, the CIWMB would identify: how programs were implemented; information used to educate individuals; materials used and discards generated; materials/products substituted; changes in logistics; associated costs and benefits; problems; recommendations; impact on waste stream; and contact and phone number. This information could provide a vehicle for promoting waste prevention practices and awareness to a variety of audiences.

Key Steps:

- determine specific practices and/or products, and types of businesses and industries to target;
- identify willing participants;
- evaluate alternatives to wasteful practices/products;
- quantify waste reduction, cost savings, etc; and
- publish and disseminate results.

Goal 3:

Build or Expand Communication Networks Within and Across the CIWMB, Other State Agencies, Local Government, Educational, Institutions, and Commercial and Industrial Facilities

Since decisions are made throughout an organization, implementing a successful and comprehensive waste prevention program requires educating individuals at all levels. It is important to establish and coordinate an extensive communication network among the private, public, and business sectors. The CIWMB's role would be to facilitate communication using the following mechanisms: 1) establishing a waste prevention task force; 2) developing a waste prevention clearinghouse including a resource center; and 3) conducting workshops and/or training seminars.

a) Establish a Waste Prevention Task Force with Representatives from Target Audiences

As outlined in Table 3, waste prevention occurs at different levels by various audiences.

Currently, no mechanisms exist to develop effective, coordinated solutions. In many cases, such as with new products or packaging, success depends on participation of manufacturers, retailers, and consumers. A task force would facilitate communication among multiple sectors and foster the development of waste prevention programs and policies at the state, local, and private sector levels to reduce waste. It would serve as a neutral forum for representatives with diverse backgrounds to build consensus and provide input on waste prevention issues. Also, the task force could sponsor seminars, forums,

and workshops dealing with specific waste prevention issues (e.g., product design, packaging, education, and quantification).

Key Steps:

- identify size and representation of task force;
- recruit members (coordinate with Market Development Task Force); and
- develop goals and objectives.

b) Develop a Waste Prevention Clearinghouse Including a Resource Center

Program administrators can learn from other waste prevention activities occurring throughout California and the nation to determine what activities to implement. Access to this information allows program administrators to build off the knowledge and experience of others.

However, gathering information can be very time consuming and laborious. A CIWMB clearinghouse/resource center would facilitate an efficient exchange of information and materials (e.g., case studies, fact sheets, video tapes, and slides) and help program administrators avoid duplicating efforts. Furthermore, CIWMB's surveys and the waste prevention symposia indicate there is a clear demand for these services by local jurisdictions and businesses.

Key Steps:

- compile information (e.g., conduct literature searches, and contact waste prevention program administrators);
- coordinate with various CIWMB staff;
- promote clearinghouse and resources available; and
- monitor use and update regularly.

c) Conduct Workshops and/or Training Seminars

Waste prevention is a new concept for many. The CIWMB found that in many organizations, recycling coordinators are assigned waste prevention responsibilities for which they are often unprepared. Under this activity, the CIWMB would gather input from program administrators and design workshops or training seminars to fulfill their needs. Workshops would be geared toward specific audiences such as local governments and certain types of businesses. Information shared at events could include: case studies, demonstration projects, resources available, educational techniques, and strategies.

Key Steps:

- identify relevant issues and topics of discussion;
- prepare agenda, secure speakers and location(s);
- promote event and register participants;
- prepare materials; and
- coordinate with other groups.

Goal 4:

Assist Local Governments in Achieving Waste Diversion Mandates Through Waste Prevention

The IWM Act mandates that local governments divert 25 percent of their waste by 1995 and 50 percent by 2000. To meet the 50-percent goal, most local governments should focus on diverting yard trimmings from landfills because trimmings comprise a significant portion of the waste stream (14.4 percent). To assist local governments in diverting yard trimmings, the CIWMB is actively promoting home management of organic waste through written materials, two educational home composting

videos, and a backyard composting book (see Appendix B, Home Composting). The CIWMB also has created a brochure to promote and educate the public about the benefits of grasscycling, the practice of leaving clippings on the lawn. To show the public that grasscycling can result in attractive and healthy lawns, the CIWMB is setting up demonstration sites (see Appendix B, Grasscycling).

Under options "a" and "b" listed below, the CIWMB would initially increase its current level of technical assistance. Over time, the CIWMB could research and develop programs and incentives designed to prevent grass clippings and yard trimmings from being landfilled. The CIWMB could also initiate legislation to ban grass clippings and/or yard trimmings from landfills. A ban could be designed with flexibility — for example to affect only those jurisdictions not meeting the 50-percent goals and/or a community exceeding a specified minimum percentage of yard waste in its waste stream. While the options for meeting the mandated goals are numerous and a ban is a last resort, it should be noted that other states have taken measures to ensure yard trimmings are not disposed of in landfills; 22 states have banned some or all yard trimmings, leaves or grass clippings from landfills.

a) Divert Grass Clippings from Disposal at Landfills

Diverting grass clippings would significantly reduce waste in landfills and may provide long-term cost savings to residents and local governments. Citizens could leave clippings on their lawns when mowing and let them decompose naturally. Preliminary research by the CIWMB

shows that many people can use their existing mowers or retrofit them to practice grasscycling. If an individual needs a new mower, he or she could purchase a mulching mower. Also, grasscycling eliminates costs associated with bagging, collecting, and disposing of grass clippings. For individuals practicing backyard composting, grass clippings can be added with other yard trimmings. Composting clippings at large composting facilities is an option in some communities.

Key Steps:

- conduct research (e.g., incentives, programs);
- meet with representatives from lawn care industry, local jurisdictions, agronomists, etc.;
- develop technical assistance program (e.g., workshops, educational materials);
- if necessary, propose legislation; and
- if enacted, develop regulations.

b) Divert Yard Trimmings from Disposal at Landfills

Diverting yard trimmings (including hedge trimmings and grass clippings) from disposal at landfills could make a significant contribution (14.4 percent) to waste diversion, perhaps more than any other activity considered, but at a higher cost than diverting grass clippings.

Alternative waste management options are backyard or on-site composting (a waste prevention approach), and off-site composting (a recycling option). These options could be used at many sites, but not all (e.g., apartments). Consequently, focusing on eliminating yard trimmings implies that large scale composting facilities would have to be sited in many jurisdictions.

Key Steps:

- conduct research (e.g., incentives, programs);
- meet with representatives from composting industry, local jurisdictions, etc.;
- develop technical assistance program (e.g., workshops, education materials);
- further investigate impact of ban and when it would be most appropriate to use;
- if necessary, propose legislation; and
- if enacted, develop regulations.

c) Set Up Cooperative State and Local Government Purchasing Program

Purchasing goods in large quantities can often save the buyer money. This activity would provide a mechanism to local governments to participate in cooperative purchasing. A joint state and local government purchasing arrangement for certain products and services such as joint maintenance contracts for two-sided copiers could be arranged. The State would coordinate purchasing requests from local governments and other state agencies and institutions, and periodically mass purchase these items. The State should be able to purchase the items at a greater discount because of higher volumes, saving local governments money.

Key Steps:

- create a list of products that enhance waste prevention efforts (e.g., composting bins, chippers, double-sided copiers, long-wearing or retreaded tires, non-toxic cleaning supplies);
- conduct a feasibility study;
- develop a tracking system to monitor requests (possibly via modem); and
- issue bids for products on an annual basis or as needed.

Goal 5:**Encourage Waste Prevention Within Organizations: State/Local Governments, Institutions, Universities and Schools, and Businesses**

The basic steps for starting a waste prevention program are similar across all types of organizations, even though specific actions must be tailored to fit a particular organization. To promote waste prevention programs, the CIWMB would facilitate the development of pilot waste prevention programs in selected organizations, including the CIWMB. These efforts would result in new information, outreach materials, and expertise that could be used in waste prevention programs across the state. Other high ranking activities are to create awareness in top management of the benefits of waste prevention and use of awards to recognize waste prevention programs.

a) Create Model Waste Prevention Program at CIWMB

Currently few governments or businesses have established waste prevention programs in California. To provide leadership through example and serve as a case study, the CIWMB recently established a Waste Prevention Action

Committee. The committee, with assistance from CIWMB staff, will be developing a comprehensive waste prevention program. The findings will be shared with other State agencies, local governments and other interested parties. This program could save money through more efficient use of supplies and equipment and provide CIWMB staff with additional expertise.

Key Steps:

- select committee with representatives across CIWMB (completed);
- identify "wasteful practices" and alternative less wasteful practices (in progress);
- select waste prevention practices to implement;
- create educational and promotional materials;
- measure impact of waste prevention practices and modify program as needed; and
- document results and use to promote similar programs elsewhere.

b) Educate Top Management about Benefits of Waste Prevention

The CIWMB recognizes that many waste prevention activities require cooperation and coordination of staff working in different areas. Additionally, staff may need to perform job duties outside their normal scope of work. For these reasons, an effective waste prevention program requires active support of upper-level management to enable participation by all personnel and departments.

To encourage top management support, the CIWMB is currently working with a contractor to develop a campaign to educate businesses on an industry-by-industry basis. Based on preliminary research, the CIWMB decided to focus this effort on hospital/HMO, hospitality, manufac-

turing and construction industries. The CIWMB will use the issue paper developed on successful business strategies and communications programs to prepare for a series of business workshops designed to target top management. To complement and build these efforts, the CIWMB will develop outreach materials and make presentations at business conferences and business schools.

Key Steps:

- determine types of educational materials that are likely to benefit top management;
- create outreach and presentation materials; and
- disseminate materials and promote benefits.

c) Give Awards for a Few Outstanding Waste Prevention Programs

The CIWMB would work with non-profit organizations to include waste prevention criteria in their existing award programs or the CIWMB could issue its own awards. These awards would recognize businesses that have implemented waste prevention measures, and provide them with a marketing tool for their efforts. Ideally, the award application would be designed to also serve as an educational tool. Organizations receiving awards could be documented in case studies and, if willing, assist other groups in their waste prevention efforts.

Key Steps:

- identify organizations with existing award programs related to solid waste, the environment, or efficiency;
- identify potential waste prevention criteria that could be included in an award program; and
- contact and meet with individuals from organizations to add waste prevention criteria to their existing award program.

Goal 6:

Develop Incentives and Assistance to Encourage Design, Manufacture, Distribution, Sales and Reuse of Products or Packaging That Decrease the Amount or Toxicity of Waste Generated

The CIWMB would seek to work with manufacturers and other businesses to incorporate waste prevention approaches into the design and manufacture of products to reduce environmental and health risks. This is critical because many attributes affecting a product's environmental impact are determined before it reaches consumers (e.g., some products are designed so chargeable batteries cannot be replaced). Similar to an energy-efficient appliance, waste prevention applied to product design allows consumers to practice waste prevention without changing their behavior (e.g., a lightweighted beverage containers or a reduction in mercury in batteries).

a) Provide Cooperative Technical Assistance
Businesses have indicated the need for technical assistance in establishing and expanding waste prevention programs. Under this activity, the CIWMB would work closely with selected businesses to jointly identify specific waste prevention options. This could include a review of product and packaging design, production processes, distribution systems, marketing, and so forth. Non-confidential information could be shared with others, if approved by participating firms. The CIWMB could develop waste prevention fact sheets/manuals for specific industries.

Key Steps:

- identify interested businesses;
- determine business needs;
- set up team with relevant experience to provide assistance (could include non-CIWMB staff);
- meet with businesses, as needed; and
- document effectiveness of waste prevention approaches and disseminate to others.

b) Develop Guidelines for Reusing, Upgrading, and Making More Durable Products

Difficulty in changing behavior was identified as a major barrier to waste prevention. As mentioned above, one method that does not always require a change in consumer behavior is incorporating waste prevention into the design of a product. Under this activity, the CIWMB would promote, pilot test, and improve product guidelines to encourage manufacturers to design products that are reusable, repairable, can be upgraded, or contain other waste preventing features. In the long-term, the CIWMB should consider mandatory guidelines if a voluntary approach is ineffective.

Key Steps:

- establish a volunteer working group representing product designers, engineers, manufacturers, etc.;
- develop guidelines;
- test guidelines through work group members;
- promote guidelines; and
- monitor effectiveness of guidelines and improve as necessary.

c) Expand Materials Exchange and Reuse Through CALMAX

CALMAX is the CIWMB's materials exchange program. Its primary goal is to divert items traditionally discarded by business and industry through reuse and recycling; materials discarded by one business are often a valuable resource to another.

CALMAX serves as a communications network for trading inexpensive or free materials and brings reusers, recyclers, and waste generators together to simultaneously create new markets and reduce waste. Under this activity, the CIWMB would further highlight benefits, expand, and promote CALMAX.

Key Steps:

- actively solicit additional participants;
- identify cost savings and amounts of materials/products being reused;
- publicize findings; and
- set up a database to allow direct modem access to listings.

Provisions for Review and Revision

This waste prevention plan is intended to provide guidelines to the Executive Director in implementing waste prevention programs and policies. The CIWMB views this document as a dynamic process and recognizes that implementation of activities and future analysis of new issues may lead to changes. These changes may warrant subsequent revisions.

Glossary



Advanced disposal fees (ADFs):

fees designed to incorporate the cost of waste disposal in the price of a product or package.

Durable product:

generally defined as a product having a lifetime of three years or more (e.g., furniture, appliances, tires).

Grasscycling:

a waste prevention practice of leaving grass clippings on the lawn and allowing them to decompose naturally instead of collecting them for composting or disposal.

Inert solids:

a non-liquid solid waste including but not limited to rocks, concrete, brick, sand, soil fines, asphalt, and unsorted construction and demolition waste.

Life-Cycle analysis (LCA):

evaluation of a product's cost based on energy use, material inputs, and wastes generated during its life — from extraction and processing of raw materials, to manufacture and transport to the marketplace, and finally to use and disposal of the product. Also called "cradle to grave" analysis.

Lightweighting:

reducing the amount of material used to manufacture a product or package.

Municipal solid waste (MSW):

solid waste generated at residences, commercial establishments, and institutions. In California, MSW includes construction and demolition debris and automobile scrap; U.S. EPA does not include these materials.

Non-Durable product:

a product that has a lifetime of less than three years (e.g., paper products, disposable food service products, clothing, shoes).

Postconsumer material:

any product that has been used by a consumer.

Reusable product:

a product that can be used at least twice without changing its original form.

Secondary material:

recyclable material(s) that can be used as a substitute for primary raw materials in product manufacturing.

Source-reduced product:

a product or package with characteristics that result in less waste being generated than an equivalent counterpart (e.g., a product with modular components that can be easily repaired, photocopy machines that produce two-sided copies without breaking down, lighter weight or reusable packaging).

Waste prevention:

See page 3.

White goods:

enamel-coated major appliances, such as stoves, washing machines, refrigerators, and hot water heaters.

Xeriscaping:

the practice of landscaping with slow growing, drought tolerant plants to conserve water and reduce yard trimmings.



Appendix A



Table 9: Summary of Other Activities

The activities described below did not score as high as the CIWMB's priority activities listed in Table 2. However, the CIWMB may implement some of these activities if resources are available.

Goal 1:

Create Awareness and Encourage Individuals to Incorporate Waste Prevention Practices into Daily Activities

- c. Develop Waste Prevention Curricula for Grades K-12.
- d. Develop Waste Prevention Curricula for Selected University/College Academic Programs.
- e. Establish a Labeling System.

Goal 2:

Acquire Basic Information About the Effectiveness of Waste Prevention Approaches Needed to Initiate Efforts

- c. Conduct Discretionary Research.
- d. Fund Case Studies, Demonstration Projects, and Research Conducted by Others.

Goal 3:

Build or Expand Communication Networks Within and Across the CIWMB, Other State Agencies, Local Governments, Educational Institutions, Commercial and Industrial Facilities

- d. Provide Direct Modem Access to Information in Clearinghouse.
- e. Set Up Peer Matches Between Similar Businesses, Local Government Personnel, and Others.

Goal 4:

Assist Local Governments in Achieving Waste Diversion Mandates through Waste Prevention

- d. Investigate Funding Mechanisms.
- e. Develop Model Ordinance for Unit Pricing (e.g., a variable can rate).

- f. Create Model Zoning Ordinance for Repair and Reuse Facilities.
- g. Provide Software for Calculating the True Cost of Waste Management Services.
- h. Mandate Landfill Surcharges on Certain Items (e.g., white goods).

Goal 5:

Encourage Waste Prevention Within Organizations: State/Local Governments, Institutions, Universities and Schools, and Businesses

- d. Establish Voluntary Waste Prevention Goals and Recognize Facilities Achieving Them.
- e. Create Tools (e.g., software) to Facilitate Product Comparisons.
- f. Develop Purchasing Guidelines for Waste Prevention.

Goal 6:

Develop Incentives and Assistance to Encourage Design, Manufacture, Distribution, Sales and Reuse of Products or Packaging that Decrease the Amount or Toxicity of Waste Generated

- d. Set Up Business Focus Groups.
- e. Establish Waste Prevention Requirements for Certain Types of Packaging (See Goal 2a).
- f. Develop Manufacture Responsibility Legislation (See Goal 2a).
- g. Eliminate Sales Tax on Repair Parts .
- h. Develop Grant Program to Foster University/Business Research and Technical Assistance.
- i. Establish Salvage Reuse Operations at Materials Recovery Facilities (MRFs).
- j. Provide Low-Interest Loans.
- k. Allow Tax Credits for Businesses Meeting Certain Waste Prevention Targets.
- l. Develop Advanced Disposal Fees or Fees on Non-Source Reduced Products.
- m. Expand Tax Credit Program to Cover Waste Prevention.



Other Activities

The CIWMB ranked more than 40 activities identified through research, surveys, interviews, and symposia. (See Methodology section for more detailed information.) Given limited funds, the CIWMB developed criteria and set up a ranking system to select priority activities. From this process the CIWMB selected 16 priority activities (see Table 2). The other, lower-ranking, activities are listed below under each goal; the first program listed had the highest score in its category. Although the activities below did not rank as high as priority activities, the CIWMB may implement them — especially ones closely linked to existing CIWMB activities.

Goal I.

Create Awareness and Encourage Individuals to Incorporate Waste Prevention Practices into Daily Activities

In addition to the priority activities of developing outreach materials for the general public and conducting a statewide waste prevention education and outreach campaign, the CIWMB considered the following activities:

1) developing waste prevention curricula for Grades K-12; 2) developing waste prevention curricula for selected university/college academic programs; and 3) establishing a labeling system.

These are described in further detail below.

c) Develop Waste Prevention Curricula for Grades K-12

In an effort to develop a student population that is aware of and concerned about IWM issues, the CIWMB has been working with the State Department of Education and Department of Toxic Substances Control to review existing

educational materials as they relate to California educational standards. Two teacher review teams evaluated educational materials collected nationwide, including an assessment of waste prevention materials. Results of these evaluations will be compiled into a Waste Management Curricula Compendium and will be distributed to educators throughout the state.

Under this activity, the CIWMB would further evaluate the waste prevention portions of the curricula collected to identify gaps and quality. If needed, the CIWMB would develop new waste prevention curricula.

d) Develop Waste Prevention Curricula for Selected University/College Academic Programs

Educating future teachers and professionals about waste prevention concepts could result in less waste generated when individuals apply these concepts in the workplace. Under this activity, the CIWMB would work with universities and colleges to include waste prevention approaches in curricula for selected academic programs (e.g., engineering, MBA programs, home economics, and agricultural extension).

e) Establish a Labeling System

A frequently-cited barrier to effective public education is the lack of or inconsistent environmental labeling on products and packaging. However, standard environmental labeling can be used to reward businesses with a marketing tool for their efforts in promoting waste prevention. Cal/ EPA has an Environmental Marketing Task Force analyzing approaches to assist businesses in marketing environmentally

desirable products, including labeling options. This effort will result in a report to the Governor in summer 1993.

Under this activity, the CIWMB would review findings from the report to the Governor mentioned above and other documents. If appropriate, the CIWMB would then develop labeling criteria for products/packaging containing waste prevention characteristics.

Goal 2:

Acquire Basic Information About the Effectiveness of Waste Prevention Approaches Needed to Initiate Efforts

Conducting primary research and case studies or demonstration projects are the top priorities under this goal. The CIWMB considered two other activities, described below: 1) conducting discretionary research; and 2) funding case studies, demonstration projects, and research by others.

c) Conduct Discretionary Research

After conducting primary research, information gaps will still exist. Under this activity the CIWMB would research additional topics important to furthering waste prevention. Research topics could include: measuring the quantity of yard trimmings generated from various landscaping alternatives; reducing toxic materials in solid waste; developing markets for reused/repaired products; determining the quality of reused/repaired products; and assessing trade-offs when one material/product is substituted for another.

d) Fund Case Studies, Demonstration Projects, and Research Conducted by Others

To encourage businesses and local governments to implement waste prevention programs and enable the CIWMB staff to gather additional information to share with others, the CIWMB could provide financial assistance through grants. These grants could be issued for waste prevention case studies, demonstration projects, or other research and would be awarded contingent on grantees documenting efforts to share with others.

Goal 3:

Build or Expand Communication Networks Within and Across the CIWMB, Other State Agencies, Local Government, Educational, Institutions, and Commercial and Industrial Facilities

The CIWMB selected three priority activities under this goal: 1) establish a waste prevention task force, 2) develop a waste prevention clearinghouse, and 3) conduct workshops or training seminars. Below are two activities that could also be implemented to build or expand communication networks.

d) Provide Direct Modem Access to Information in Clearinghouse

The CIWMB would develop a database allowing any organization direct modem access to the waste prevention clearinghouse (listed as a priority activity). This would supplement other clearinghouse functions and could be linked with other data systems (e.g., listings from CALMAX, the materials exchange, could be made available through the system). Where appropriate, complete reports/articles could be available via computer.

e) Set Up Peer Matches Between Similar Businesses, Local Government Personnel, and Others

To encourage the transfer of ideas among peers, the CIWMB could coordinate a team of volunteers to assist others in implementing waste prevention activities. Volunteers would provide training, assist with waste audits, and identify waste prevention opportunities and education approaches. This effort could be broadened so volunteers provide both waste prevention and recycling expertise.

Goal 4:

Assist Local Governments in Achieving Waste Diversion Mandates Through Waste Prevention

The CIWMB determined that diverting grass clippings and eventually all yard trimmings from disposal in landfills could significantly reduce the amount of landfilled material because yard trimmings comprise 14.4 percent of California's waste stream. Consequently, these actions ranked as high priorities and could assist local jurisdictions in reaching the mandated diversion goal of 50-percent by the year 2000.

Additionally, the CIWMB identified a cooperative purchasing program among state and local governments as a priority activity. Other activities considered under this goal are: 1) investigating funding mechanisms; 2) developing a model ordinance for unit pricing (e.g., a variable can rate); 3) creating a model zoning ordinance for repair and reuse facilities; 4) providing software for calculating the true cost of waste management services; and 5) mandating landfill surcharges on certain items (e.g., major appliances or white goods).

d) Investigate Funding Mechanisms

The CIWMB discovered through surveys and waste prevention symposia that lack of resources was preventing local jurisdictions from implementing programs. Under this activity, the CIWMB would research and identify a variety of available funding options, such as waste prevention grant opportunities available from foundations, the federal government, or fee systems.

e) Develop Model Ordinance for Unit Pricing (e.g., a variable can rate)

Residences in many local jurisdictions pay a flat rate for waste disposal services, regardless of the amount of waste they generate. Charging by a specified unit (e.g., can or bag) rewards citizens who reduce the number of cans or bags of waste they generate.

The CIWMB is already working on materials to assist local jurisdiction in selecting and implementing a unit pricing system. Through a contract with Booze-Allen, the CIWMB is developing the following set of documents: 1) a decision-making support document, 2) a fact sheet, 3) a system design and implementation guide, and 4) a resource guide. All four products are due by summer 1993 (see Appendix B, Unit-Based Pricing).

Under this activity, the CIWMB would take the project described above one step further by developing a model ordinance and providing sample language for various types of unit pricing systems.

f) Create Model Zoning Ordinance for Repair and Reuse Facilities

Currently many repair/reuse businesses are restricted to less desirable commercial/retail areas because of local zoning requirements. Under this activity, the CIWMB would develop model ordinance language to modify local zoning so repair/reuse firms can be located in desirable retail areas.

g) Provide Software for Calculating the True Cost of Waste Management Services

Indirect costs are rarely included in conventional cost analysis of waste management systems. If added to the cost of disposal, the value of waste prevention would increase. For this activity, the CIWMB would develop a true cost-pricing methodology for determining the total marginal costs of waste management services. This could be done in conjunction with existing efforts at the University of California at Davis and the CIWMB. (Note: software could also include spreadsheets for measuring costs and savings of various waste prevention programs).

h) Mandate Landfill Surcharges on Certain Items (e.g., white goods)

Some products contribute an additional burden to waste management systems because they are physically large, contain environmentally harmful materials that should be removed (e.g., PCBs, freon), or otherwise must be handled differently. Some of these appliances can be repaired and reused.

A surcharge on these types of items could help to ensure that they are properly handled and may encourage repair and reuse or recycling. The CIWMB would seek surcharges on items such as large appliances, similar to the CIWMB's

existing fee imposed on tires. Monies could be used to fund the establishment of reuse/repair facilities.

Goal 5:**Encourage Waste Prevention Within Organizations: State/Local Governments, Institutions, Universities and Schools, and Businesses**

Under this goal, the CIWMB selected: 1) creating a model waste prevention program at the CIWMB; 2) educating top management about the benefits of waste prevention; and 3) recognizing outstanding waste prevention programs as priority activities. Other activities to encourage waste prevention within organizations are: establishing certain targets and recognizing groups that achieve them; creating tools to facilitate product comparisons; and developing purchasing guidelines for waste prevention. Descriptions of these activities follow.

d) Establish Voluntary Waste Prevention Goals and Recognize Facilities Achieving Them

To reward organizations that are taking positive steps towards waste prevention, the CIWMB could establish waste prevention targets for key products discarded such as packaging, paper, and yard trimmings (e.g., reduce packaging waste by 50 percent; reduce paper use by 25 percent; and practice grasscycling). Firms reaching the targets would be recognized in some way.

e) Create Tools (e.g., software) to Facilitate Product Comparisons

Purchasing agents may be unfamiliar with source reduced products/services and how they compare to those they are currently using. Also, purchasing agents typically have to make justifications for purchasing better quality products that cost more initially, but may be less expensive overall. Under this activity, the CIWMB would develop electronic spreadsheets designed to facilitate analysis of cost savings and waste reduction associated with various purchasing options.

f) Develop Purchasing Guidelines for Waste Prevention

As mentioned above, purchasing agents may be unfamiliar with cost saving waste prevention products and services. The CIWMB would review alternative products and opportunities for buying wisely (e.g., refillables, and bulk items) and develop guidelines for purchasing agents.

Goal 6:**Develop Incentives and Assistance to Encourage Design, Manufacture, Distribution, Sales and Reuse of Products or Packaging That Decrease the Amount or Toxicity of Waste Generated**

As identified in Table 3, manufacturers have an opportunity to make a tremendous impact on waste generation. When waste prevention is incorporated into the design of a product or its packaging, no behavior change is required of consumers. The priorities of the CIWMB are to assist manufacturers and other businesses by providing cooperative technical assistance, developing guidelines, and expanding materials

exchange and reuse through CALMAX.

Additionally, the CIWMB identified a number of other activities, which are described below.

d) Set Up Business Focus Groups

To better understand how decisions are made, what information is needed, and who to target within organizations, the CIWMB could set up focus groups with selected businesses or manufacturers. This effort could focus on decision making in the production process, and also in the design, marketing, and distribution stages. The CIWMB would use this information to assist individuals at these key decision making points.

e) Establish Waste Prevention Requirements for Certain Types of Packaging

The CIWMB is currently working on an implementation plan addressing rigid plastic containers. In 1992, approximately 800 million pounds of rigid plastic packaging containers were disposed of in California landfills. The Rigid Plastic Container Act (SB 235) by Senator Hart was passed to address this very visible component of the waste stream. This act mandates that manufacturers produce rigid plastic containers that meet one of the following options: attain mandated recycling rates; be reused or refilled more than 5 times; be source-reduced by 10 percent (every five years); or be made from 25 percent postconsumer material. SB 235 will be closely monitored and evaluated to determine its transferability to other types of packaging (see Goal 2a).

Under this activity, the CIWMB would develop certain waste prevention requirements for other types of packaging, such as corrugated cardboard and wood pallets, that contribute significantly to waste disposed at landfills.

f) Develop Manufacture Responsibility Legislation

Manufacturers and other designated entities are encouraged by the CIWMB to assume responsibility for supporting waste prevention and recycling efforts. This can be accomplished through mandatory or voluntary commitments from manufacturers and others. For example, Germany's packaging act, passed in 1991, makes industry responsible for the management of packaging discards. Packaging used in transportation must be collected and reclaimed by producers and distributors. Additionally, secondary packaging (e.g., tamper-proof packaging, and exterior cartons) must be taken back by retailers; primary packaging must be collected by retailers, either in their stores or in the immediate vicinity.⁸ This law is intended to encourage manufacturers to reduce packaging.

The CIWMB is currently analyzing Germany's program among others, and held a workshop on this topic in April 1993. Based on findings from the workshop, research will be conducted regarding manufacturing legislation (see Goal 2a). After completing the research, the CIWMB may reconsider this activity's ranking. If it becomes a priority, the CIWMB would develop and pursue a manufacturer responsibility approach best suited for California.

g) Eliminate Sales Tax on Repair Parts

Repairing goods is not always convenient or cost effective. To encourage the public to repair more

items, the CIWMB could seek to remove sales tax on repair parts. This would reduce repair costs and create a financial incentive.

h) Develop Grant Program to Foster University/Business Research and Technical Assistance

To encourage waste prevention research, development, and implementation, the CIWMB would award grants to universities examining waste prevention through product design and product adaptation processes, innovative packaging, etc. Universities would then provide technical assistance to other businesses to assure broad implementation.

i) Establish Salvage Reuse Operations at Materials Recovery Facilities (MRFs)

Repairing and reusing products is a waste prevention approach because it extends the life of a product. Under this activity, the CIWMB would seek establishment of reuse operations at MRFs. If MRFs have designated areas for salvaging reusable goods, this could make reuse an integral part of a MRF design and ensure widespread salvaging of reusable goods.

j) Provide Low-Interest Loans

The CIWMB currently manages a competitive low-interest loan fund. This program provides direct loans up to \$1 million to recycling businesses and local governments located in designated zone areas. Private businesses and non-profit organizations may borrow funds to create or convert manufacturing processes to use recyclable materials. Local governments may borrow funds to expand infrastructure necessary to support recycling industries. Although the loan program does not rule out waste prevention

related activities, the loan criteria are designed to encourage recycling (see Appendix B, Recycling Market Development Zone Program).

The CIWMB could develop a loan program to encourage waste prevention; loans could be given to defray the cost of retooling, for purchasing new equipment, for research and/or for development, and designing new products and packaging.

k) Allow Tax Credits for Businesses Meeting Certain Waste Prevention Targets

Financial incentives are a mechanism for encouraging businesses to establish waste prevention programs. Under this activity, the CIWMB would encourage legislation to establish industry-by-industry waste prevention targets and allow tax credits for firms meeting or exceeding these targets (e.g., achieving 25-percent paper reduction or achieving a 25-percent packaging reduction).

l) Develop Advanced Disposal Fees or Fees on Non-Source-Reduced Products (e.g., nonreusable and nonrepairable products, household hazardous waste)

Two potentially powerful fee approaches are advanced disposal fees and back-end fees. Under a advanced disposal fee approach, a fee is charge on products and packaging prior to consumption: a back-end fee for waste management services is charged after products are consumed. In addition to providing a financial incentive to reduce waste, fees can provide a funding source for developing waste prevention and recycling infrastructure and programs.

The CIWMB staff are conducting analysis and will held a workshop on these topics in April 1993. This is part of a CIWMB project to develop an overview and framework for

analyzing related legislative proposals. Under this activity, the CIWMB would encourage a fee system to include the costs of disposing, recycling, and reducing waste in the product's price.

m) Expand Tax Credit Program to Cover Waste Prevention

The California Recycling Manufacturing Equipment Tax Credit allows businesses purchasing equipment used to make recycled products to claim a credit on their state income taxes for up to 40 percent of the value of the equipment (not to exceed \$250,000). The tax credit program will expire at the end of 1993 unless new legislation is enacted. The CIWMB would seek to renew and expand this tax credit program to cover waste prevention related equipment or purchases (e.g., purchasing equipment to manufacture products with modular design or improved repairability; making investments in innovative packaging, using less toxic materials; or changing to reuse/refillable containers. See Appendix B, Recycling Equipment Tax Credit Program.)

Appendix B



Current Waste Prevention Related Activities

Please refer to the 1992 Annual Report of the California Integrated Waste Management Board for additional information.

▲ CALMAX (California Materials Exchange)

CALMAX is the CIWMB's materials exchange program. Its primary goal is to divert items traditionally discarded by business and industry through reuse — a form of waste prevention — and recycling. Materials discarded by one business are often a valuable resource to another.

CALMAX issues a free bimonthly catalog that lists materials available and materials wanted. This serves as a communications network for trading inexpensive or free materials among businesses, organizations, recyclers, waste generators, and others. In its first year of operation more than 65 exchanges resulted in about 112,000 tons of diversion. With more than a million businesses in California, CALMAX has great potential. It recently became part of a nationwide materials exchange network.

Contact: Joyce Mason (916) 255-2405.

▲ Clearinghouse (informal)

CIWMB provides assistance to local jurisdictions and businesses seeking waste prevention information. Current information is limited and typically from other states, but includes case studies, fact sheets, and material on: setting up a waste prevention program and conducting facility audits; measuring waste prevention

activities; and purchasing guidelines.

Contacts: Lynne Cody (916) 255-2361 and Kathy Frevert (916) 255-2339.

▲ Commercial Waste Prevention and Recycling Guide

The CIWMB often receives requests from businesses on how to set up a recycling program. To address this need, the CIWMB is beginning to draft a Waste Prevention and Recycling Guide for businesses that will describe how to set up and operate a comprehensive waste reduction program. This guide will include: a discussion on waste prevention approaches that businesses can consider; information on how to design cursory audits to identify waste prevention and recycling opportunities; methods for assessing the impact of a particular option; suggestions for educating employees; a listing of resources in California; and more.

Contact: Mindy Fox (916) 255-2367.

▲ Commercial Sector Video

To reach mandated diversion goals, local governments must encourage the commercial sector to participate in waste diversion programs. The CIWMB sponsored a statewide videoconference in 1992 that focused on various diversion strategies that local governments could undertake. The conference video and companion resource manual focus on recycling, yet include some information on waste prevention for businesses, including a restaurant, retail store and commercial office.

Contact: Cara Morgan (916) 255-2374.



▲ Curriculum Development

In an effort to develop a student population that is aware of and concerned about IWM issues, the CIWMB has been working with the State Department of Education and Department of Toxic Substances Control to review existing educational materials and how they relate to California educational standards. Two teacher review teams evaluated materials collected nationwide. This evaluation included an assessment of waste prevention materials. Results of these evaluations will be compiled in a Waste Management Curriculum Compendium and will be distributed to educators throughout the state.

Contact: Cathy Love (916) 255-2373.

▲ Grasscycling

Grass clippings are a significant portion of yard trimmings. Local jurisdictions across the country encourage grasscycling, which simply means leaving grass clippings on the lawn to decompose naturally and releases nutrients back into the soil. This method of lawn care has the endorsement of the Professional Lawn Care Association of America. To promote and educate the public about grasscycling, the CIWMB created a brochure to highlight the benefits of grasscycling including tips on how to maintain a healthy lawn while practicing it. To show the public that grasscycling can result in attractive and healthy lawns, the CIWMB is setting up demonstration sites. Also, the CIWMB and University of California Cooperative Extension provide joint presentations to landscapers to educate and encourage them to practice grasscycling.

Contact: Ken Decio (916) 255-2641.

▲ Home Composting

Recognizing the significant role that home composting can play in an overall waste reduction program, the CIWMB has actively promoted home management of organic wastes through the development of written material, the production of two educational home composting videos, and the distribution of a 95-page book, Backyard Composting. These materials are being distributed to local governments and other interested parties to assist in educating the public about backyard composting. Additionally, the CIWMB is creating a brochure on worm composting, or vermiculture, a method that turns food discards into a rich soil amendment. This type of composting provides an opportunity to compost when an outdoor area may be unavailable; worm composting can be performed indoors in a small space.

Contact: Jeff Hunts (916) 255-2375.

(Also see Grasscycling.)

▲ Labeling

Environment labeling can provide businesses with a marketing tool and reward them for their efforts in promoting waste prevention and recycling. The Cal/ EPA has an Environmental Marketing Task Force analyzing approaches to help businesses market environmentally "good" products, including labeling options. This effort will result in a report to the Governor in summer 1993.

Contact: Ed Boisson (916) 255-2204.

▲ Manufacture Responsibility Options and Fee Incentive Approaches

Manufacture responsibility approaches seek mandatory or voluntary commitments from manufacturers and other designated entities to assume specified responsibility to support waste prevention and recycling efforts. For example, Germany's packaging act, passed in 1991, makes manufacturers responsible for the management of packaging discards. Under this system, packaging must be collected and reclaimed by producers, distributors, or retailers, depending on the type of packaging. For example, packaging used in transportation must be managed by producers and distributors, secondary packaging (e.g., tamper-proof packaging, exterior cartons) must be taken back by retailers, and primary packaging must be collected by retailers, either in their stores or in the immediate vicinity.⁹ This encourages manufacturers to reduce packaging.

Two potentially powerful fee approaches are advanced disposal fees and back-end fees. Under an advanced disposal fee approach, a fee is charged on products and packaging prior to consumption, while a back-end fee for waste management services is charged after products are consumed. In addition to providing a financial incentive to reduce waste, fees can provide a funding source for developing waste prevention and recycling infrastructure and programs. CIWMB staff are conducting analysis and held a workshop on these topics in April 1993. This is part of a CIWMB project to develop an overview and framework for analyzing related legislative proposals.

Contact: Ed Boisson (916) 255-2204.

▲ Market Status Reports

The CIWMB developed a Market Development Plan to understand California's recycling markets, provide a vision, and ensure that market development efforts are at the forefront of national and worldwide efforts. To initiate this effort, the CIWMB held workshops with representatives from industry, environmental groups, local governments, and other groups to receive input for analysis on seven secondary material types: paper, glass, plastic, compostables, metals, tire, and pavement/inerts. From this the CIWMB prepared market status reports, which include a full market analysis of each material and a discussion on methods to reuse materials. Building from the individual reports, the CIWMB ranked actions identified in each report according to criteria such as potential waste diversion, job creation, potential for attracting capital investment, and others. The top-ranked actions form the core of the CIWMB's Market Development Plan. Staff are currently researching an eighth material type, construction and demolition debris. A workshop will be held in the fall 1993.

Contact: Bill Huston (916) 255-2394.

▲ Materials Exchange (See CALMAX) Model University Waste Reduction Program

There are 20 California State Universities, 9 Universities of California, and 108 Community Colleges in the states, serving 2.5 million students and employing 31,000 faculty and staff. In many instances, these campuses are the single largest generators of waste in their communities. The CIWMB recognizes there is a great potential to prevent waste at these campuses and has inter-agency agreements with four universities to implement comprehensive waste diversion

programs. The scope of work requires universities to develop and implement procurement preference plans and waste prevention pilot programs and policies. Final report guides and "how-to" videos will be developed and made available at cost to universities and colleges in California.

Contact: Terry Brennan (916) 255-2378.

▲ Outreach to General Public

In 1992, the CIWMB embarked on a statewide public education campaign through a contract with DDB Needham Worldwide, Inc. The effort began with an analysis of consumer attitudes on a full range of IWM issues. The CIWMB determined that the best opportunity to achieve behavioral change was to build upon the momentum of the recycling movement, asking consumers to take the next step — reduce waste at the source. This long-range effort has a two-pronged approach: a pilot public awareness program in two test markets; and development of a public awareness support kit for local governments.

The pilot study uses television commercials, radio announcements, newspaper ads, and billboards to encourage consumers to purchase products that have minimal packaging, are recyclable, or are made with recycled materials. They also ask viewers or listeners to call an 800 number for more information. Callers receive a waste prevention kit in a reusable envelope. The kits includes a reusable cloth bag, shopper's guide, waste prevention booklet, and a reusable shopping list and pen. The CIWMB will conduct a follow-up survey to determine the impact of the campaign and make adjustments, if necessary.

In addition to the pilot study, the CIWMB is developing a media kit and instructions on how to conduct an effective public education program for local governments. The kit includes:

- tips on publicizing activities and programs;
- research findings on consumers attitudes;
- a calendar of public awareness events that can be disseminated to the press;
- radio public service announcements;
- television public service announcements;
- newspaper advertisement slicks; and
- camera-ready art for several brochures

Contact: Pat Macht (916) 255-2296.

▲ Outreach to Industry and Business

The CIWMB initiated a statewide public education campaign to convince business that recycling is not enough; other actions such as reducing waste, reusing materials, and buying recycled or recyclable goods are needed. The CIWMB's analysis of existing research, along with results from business focus groups conducted by DDB Needham Worldwide, Inc., indicate that businesses are willing to reduce, reuse, recycle, and buy recycled-content products, if it is economical and convenient.

Contact: Pat Macht (916) 255-2296.

In conjunction with the statewide campaign mentioned above, the CIWMB is working with Keep California Beautiful to develop a campaign to educate businesses on an industry-by-industry basis. Based on preliminary research, the CIWMB decided to focus this effort on hospital/HMO, hospitality, manufacturing, and construction industries. The CIWMB will use an issue paper on successful business strategies

and communications programs to prepare for a series of business workshops to be launched in 1993.

Contact: Tricia Broddrick (916) 255-2292.

Additionally, the U.S. EPA is working with the CIWMB and other organizations to sponsor a Business Waste Prevention Workshop in Southern California. At the workshop, waste prevention leaders in the business community will educate their peers about its benefits, including its potential to reduce costs.

Contact: Lynne Cody (916) 255-2361.

▲ Project Recycle

The purpose of Project Recycle is to divert as large a quantity of material as possible from State facilities, including offices, prisons, developmental centers, universities, community colleges, and parks. Through Project Recycle, the CIWMB coordinates nearly 500 comprehensive waste management programs in State-owned and leased buildings. These efforts have resulted in the collection of 6,207 tons of recyclable materials in 1992, up from 2,123 tons in 1991. The CIWMB also trains staff from State facilities on the importance of recycling and waste prevention.

Contact: James Cropper (916) 255-2381.

▲ Restaurant Guide

San Francisco has developed a comprehensive waste prevention guide for restaurants that includes tips on purchasing, product handling and storage, food preparation and storage, and production and service areas. The CIWMB has modified this guide. It is available for reprint in English, Chinese and Spanish.

Contact: Mindy Fox (916) 255-2367.

▲ Retreaded Tires on State Vehicles

All tires on state passenger vehicles issued for short-term use through the Fleet Administration are required to be equipped with retreaded tires at the next required tire installation. The Department of General Services (DGS) tabulates the number of retreaded tires it purchases annually and forwards this information to the CIWMB. DGS is also evaluating the quality and performance of retreaded tires; this information will be presented in a report due July 1993.

Contact: Jim Robinson (916) 255-2404.

▲ Rigid Plastics

In 1992, approximately 800 million pounds of rigid plastic packaging containers were disposed of in California landfills. To address this very visible component of the waste stream, the Rigid Plastic Container Act (SB 235) by Senator Hart was enacted. This act mandates that rigid plastic packaging containers comply with one of the following options: attain mandated recycling rates; be reused or refilled more than 5 times; be source-reduced by 10 percent (every five years); or be made from 25 percent postconsumer material.

The rigid plastic container program is quite complex and is likely to impact several industries. To better determine affected parties and administrative options, staff conducted three Technical Advisory Committee meetings. Also, the CIWMB is preparing a draft report on implementing the act, that which will be available for public comment.

Contact: Bendan Blue (916) 255-2391 and Kristina Loquist (916) 255-2654.

▲ Source Reduction and Recycling Elements

To meet the aggressive goals of the IWM Act, cities and counties must implement programs to effectively manage their solid waste. Each local jurisdiction addresses waste prevention options for reducing solid waste generation, along with other options, in their Source Reduction and Recycling Element (SRREs). Analysis of the SRREs indicates that the most common waste prevention approaches that local jurisdictions plan to use are: rate structure modification (e.g., unit pricing); activities to prevent office waste; waste studies to identify what can be reduced or recycled; and repair and/or sale of second hand or used goods.

Contact: Toni Galloway (916) 255-2309.

▲ Source Reduction and Recycling in Schools

The CIWMB surveyed the K-12 public schools in California to identify schools with waste prevention and recycling programs and those in need of such programs. Eighty-two percent (1,414) of the responding schools reported practicing a few waste prevention approaches. However, most schools practice waste prevention on an ad hoc basis and these efforts could certainly be expanded.

The CIWMB is assisting school districts in developing pilot waste prevention and recycling programs in schools throughout several counties. Information from the pilots will be used to develop training materials for local governments promoting programs in schools and for school officials. A guidebook will be completed in summer 1993 to be followed with regional training workshops in spring and summer of 1993. The CIWMB has developed a list of industry contacts for schools and a clearinghouse

of research materials. A newsletter for schools was published in spring 1993.

Contact: Cara Morgan (916) 255-2374

▲ Toxicity Research

Eliminating or reducing toxic substances in products minimizes health and safety risks from these substances when they are created, used, recycled, incinerated, or during their long-term disposal. The CIWMB is actively participating in a National Forum sponsored by the U.S. EPA on source reduction of heavy metals in municipal solid waste. This group is assessing the impacts and alternatives to the cadmium, lead and mercury found in six products: nickel-cadmium batteries (cadmium), plastic stabilizers (cadmium), circuit board solder (lead), cathode-ray tube (lead), fluorescent lights (mercury), and thermometers (mercury).

Contact: Bill Orr (916) 255-2301.

▲ Toxicity Reduction Through Promotion of Safer Alternatives

Household hazardous waste (HHW) is generated by homeowners using products containing hazardous materials. The CIWMB's HHW program provides important education and public information resources and tools for local jurisdictions to use in eliminating HHW from the waste stream. For example, the CIWMB provides grants to local jurisdictions to use for educating people on safer alternative products and using less or non-toxic products.

Additionally, CIWMB staff works with the Department of Toxic Substances Control on developing outreach materials that include information on safer alternatives; all materials are presented in English and Spanish and

disseminated to local governments and the general public.

Contact: Brenda Saldana (916) 255-2345.

▲ Unit-Based Pricing (Variable Can Rates)

In most communities a fixed monthly amount is charged for solid waste collection and disposal services. This fee structure does not provide an incentive to reduce waste generation and an increasing number of communities are turning to unit-pricing fee structures. Unit pricing means charging households for waste services based on the amount and type of waste collected.

Charging by the can, or a variable can rate, is an example of this. Another common example is selling special trash bags or tags to place on containers, and only collecting designated containers. Under these approaches, households that generate less waste will pay less.

The CIWMB, through a contract with Boozee-Allen, is developing the following set of documents to assist local jurisdictions in selecting a unit-pricing system: 1) a decision-making support document; 2) a fact sheet; 3) a system design and implementation guide; and 4) a resource guide. All four products are due by summer 1993.

The CIWMB, in a joint effort with the U.S. EPA and Research Triangle Institute, is participating in a study to analyze the impact of unit-based pricing programs. Eight California communities are involved in this nationwide study.

Contact: Soheila Khoii (916) 255-2266.

Activities With Potential To Encourage Waste Prevention

▲ GIGO (model to simulate IWM)

The University of California at Davis, Department of Engineering, with input from the CIWMB, is developing a simulated IWM model called GIGO. The model will consist of a series of modular spreadsheets for different components of a waste management system (e.g., curbside collection, or MRFs). It may be possible to add waste prevention modules for selected waste prevention activities such as backyard composting or grasscycling.

Contact: Stacy Sormano (916) 255-2706.

▲ Integrated Computer Data Management System

An effort is underway to develop an integrated data management system for the Planning & Assistance Division at the CIWMB. An integrated system would allow access to different databases at the CIWMB and elsewhere. The system would be able to provide limited public access. Eventually, CALMAX could also be part of the system.

Contact: Bob Blackstone (916) 255-2364.

▲ Recycling Market Development Zone Revolving Loan Fund Program

This program provides direct loans to recycling businesses and local governments located in designated zone areas. Private businesses and not-for-profit organizations may borrow funds to create or convert manufacturing processes to use recyclable materials. Local governments may borrow funds to expand infrastructure necessary to support recycling industries. The maximum loan amount is 50 percent of the cost of any

project, or up to \$1 million, whichever is greater. The CIWMB may loan less than 50 percent of the cost of a project.

The CIWMB is investigating whether waste prevention related businesses may be eligible for loans in this program. Although the statute specifically refers to establishing the program to benefit recycling efforts, it doesn't eliminate waste prevention. The criteria the CIWMB uses in this ranking system is reevaluated by the CIWMB each year and could be modified to enhance waste prevention/reuse.

Contact: Martha Diaz (916) 255-2396.

▲ Procurement

AB 4 and SB 1322 established a broad program to increase State and local government procurement of products with recycled content. The general goal requires that recycled products account for 10 percent of all State purchases by 1991, increasing to 20 percent by 1993, and to 40 percent by 1995. The Legislature also set specific goals for some products, including retreaded tires. (Since retreaded tires are reused in essentially their original form, this is a form of waste prevention. See Retreaded Tires on State Vehicles.)

This type of effort could be broadened to encourage procurement of products with minimal or returnable packaging, products that can be reused, are easy to repair or upgrade, or otherwise last longer. Additionally, the State could seek administrative systems that: increase efficiency (e.g., purchase perishable items on a timely basis to avoid spoilage); improve service contracts for equipment, such as photocopiers, to ensure they can make two-side copies without breaking down; establish a tracking system; and

provide incentives to departments using materials more efficiently.

Contact: Tim Dunn (916) 255-2398.

▲ Recycling Equipment Tax Credit Program

California offers a 40-percent tax credit — up to \$250,000 — for equipment that is used in the manufacture of finished products made from secondary materials. The following conditions must be met: 1) at least 50 percent of the product is composed of secondary waste discarded in California; and 2) at least 10 percent of the secondary waste is postconsumer waste, also from California. Any individual, business, or corporation that incurs a tax liability to the State of California is eligible for the tax credit. The tax credit is intended to increase the number of manufacturers processing secondary materials into new products, and does not apply to waste prevention equipment (e.g., equipment used to clean refillable bottles).

The current tax credit program has a sunset provision and expires at the end of 1993 unless new legislation is passed. If new legislation is created, there is an opportunity to expand the program and allow tax credits for waste prevention related equipment.

Contact: Jan Welch (916) 255-2388.

Appendix C



Barriers To Waste Prevention

On November 30 and December 1, 1992, the California Integrated Waste Management Board and Gainer & Associates conducted two symposia to discuss: 1) barriers to implementing waste prevention activities, and 2) state actions to overcome those barriers. Symposia participants from local and state governments, the private sector, and non-profit groups identified the following barriers that must be overcome to implement waste prevention programs.

▲ Lack of Information:

All groups expressed a need for information on how waste prevention works and the potential benefits of various waste prevention options. This information allows program coordinators to build off the experience of others, and assists in building support for programs and implementing them. Currently, individuals in business and government have a difficulty obtaining waste prevention information because there is no central resource center or clearing-house for waste prevention.

▲ Lack of Resources:

The public and private sectors allocate few resources to waste prevention because it is poorly understood and has no established precedent.

▲ Difficulty Changing Behavior:

This is an overriding theme. People are resistant to change, especially when the change is perceived as less convenient.

▲ Lack of Support From Top Management:

Without support from top management, a business or local government is unable to initiate waste prevention options or programs that cut across an organization.

▲ Lack of Consumer Demand:

Manufacturers claim there is a lack of demand for products with waste prevention attributes (e.g., concentrates, bulk, refillables, modular design). Consequently, many are unwilling to take the risk of developing new products or packaging. Meanwhile, consumers are unaware of options available.

▲ Lack of Product/Packaging Choices:

This barrier complements the lack of consumer demand. The public, local governments, and businesses do not have an adequate selection of source-reduced products to choose from.

▲ Legal, Policy, & Political Barriers:

Many laws and regulations were not developed with waste prevention in mind, and often contain language preventing it (e.g., limits on reuse, interstate commerce packaging regulations, health codes). Furthermore, reducing solid waste generation reduces revenues collected from managing waste, thereby increasing unit costs.

▲ Difficulty Coordinating Players & Messages:

Program approval, development, and implementation often involve a number of players. If key players comprise a variety of institutions, or cut across division lines or job duties, coordination is difficult and program implementation slow.



Appendix D



Overall Ranking Of Activities

Goals were originally developed to ensure that major barriers identified would be addressed and all the significant players were targeted — from residents to manufacturers. The waste prevention activities identified were ranked by CIWMB staff and placed under the appropriate goal; listed below are the activities in rank order without regard to goals, beginning with the highest scoring activity. As discussed under the Methodology Section in this plan, the criteria used to score activities are: potential impact on waste stream; potential long term economic savings to society; potential costs to CIWMB; potential cost to target audience; and basic support for other activities. (Please refer to Table 2 to see how priority activities relate to goals.)

▲ Top 16 Priorities

- Divert Grass Clippings from Disposal at Landfills
- Develop Outreach Materials for the General Public
- Conduct Primary Research, Including a Methodology for Quantifying Waste Prevention
- Conduct Case Studies/Demonstration Projects
- Establish a Waste Prevention Task Force with Representatives from Target Audiences
- Provide Cooperative Technical Assistance
- Develop a Waste Prevention Clearinghouse Including a Resource Center

- Create Model Waste Prevention Program at CIWMB
- Divert Yard Trimmings from Disposal at Landfills
- Set Up Cooperative State and Local Government Purchasing Program
- Educate Top Management about Benefits of Waste Prevention
- Give Awards to a Few Outstanding Waste Prevention Programs
- Expand Materials Exchange and Reuse Through CALMAX
- Conduct Workshops and/or Training Seminars
- Develop Guidelines for Reusing, Upgrading, and Making More Durable Products
- Conduct a Statewide Waste Prevention Education & Outreach Campaign*

* Public education is a high priority of the CIWMB. This activity ranked lower due to the high cost of conducting a statewide educational campaign. However, this effort would reach a large number of people.



▲ Other Activities

- Set Up Business Focus Groups
- Establish Waste Prevention Requirements for Certain Types of Packaging
- Provide Direct Modem Access to Information in Clearinghouse
- Develop Model Ordinance for Unit Pricing (e.g., variable can rate)
- Investigate Funding Mechanisms
- Develop Manufacturing Responsibility Legislation
- Develop Grant Program to Foster University/Business Research and Technical Assistance
- Establish Salvage Reuse Operations at Material Recovery Facilities
- Eliminate Sales Tax on Repair Parts
- Set Up Peer Matches Between Similar Businesses, Local Government Personnel, and Others
- Establish Voluntary Waste Prevention Goals and Recognize Facilities Achieving Them
- Develop Waste Prevention Curriculum for Grades K-12
- Develop Waste Prevention Curriculum for Selected University/College Academic Programs
- Conduct Discretionary Research
- Create Tools (e.g., software) to Facilitate Product Comparisons
- Provide Low-Interest Loans
- Develop Purchasing Guidelines for Waste Prevention
- Allow Tax Credits for Businesses Meeting Certain Waste Prevention Targets
- Create Model Zoning Ordinance for Repair and Reuse Facilities
- Fund Case Studies, Demonstration Projects, and Research Conducted by Others
- Provide Software for Calculating True Cost of Waste Management Services
- Develop Advanced Disposal Fees or Fees on Non-Source Reduced Products
- Mandate Landfill Surcharges on Certain Items (e.g., white goods)
- Expand Tax Credit Program to Cover Waste Prevention
- Establish a Labeling System

Endnotes



- 1 The California Integrated Waste Management (IWM) Act of 1989 mandates that cities and counties divert 25 percent and 50 percent of their waste streams by 1995 and 2000, respectively. The priorities established in statutes direct local governments to consider various options in the following order: waste prevention (source reduction), recycling and composting, and environmentally-safe landfilling and incineration.
- 2 PRC Section 40196 defines source reduction as "any action which causes a net reduction in the generation of solid waste. Source reduction includes, but is not limited to, reducing the use of non recyclable materials, replacing disposable materials and products with reusable materials and products, reducing packaging, reducing the amount of yard wastes generated, establishing garbage rate structures with incentives to reduce the amount of wastes that generators produce, and increasing the efficiency of the use of paper, cardboard, glass, metal, plastic, and other materials."
- 3 The CIWMB secured a contract with Gainer & Associates, Tellus Institute, RGB Consulting Services, and Waste Reduction Research to assist in this process.
- 4 Both CIWMB and U.S. EPA data were used. CIWMB data focus primarily on materials discarded or recovered such as paper, plastic, and metal rather than products discarded; the U.S. EPA has information on several products discarded.
- 5 CIWMB does not have product data available. U.S. EPA data was used to analyze trends. Trend data were obtained from the U.S. EPA report, Characterization of Municipal Solid Waste in The United States: 1992 Update.
- 6 CIWMB report conducted by Ernst & Young under contract, Household Battery Waste Management Study, March 31, 1992, pp. III-13.
- 7 The CIWMB secured a contract with Gainer & Associates and Waste Reduction Research to develop quantification guidelines for local governments and businesses.
- 8 McCarthy, James, "Waste Reduction and Packaging in Europe," Resource Recycling 10(7), pp. 56-63, July 1991.
- 9 McCarthy, James, "Waste Reduction and Packaging in Europe," Resource Recycling 10(7), pp. 56-63, July 1991.

