

# CASE STUDIES

## ON THE WAY TO ZERO WASTE WORLDWIDE

Throughout the world, innovative businesses, governments, and communities are already implementing, successful programs that reduce waste to zero – or darn close. New initiatives are continually reported from around the world, and are chronicled on the GrassRoots Recycling Network's web site: [www.grrn.org](http://www.grrn.org).

Here are some of the leaders pursuing Zero Waste goals in the following categories:

1. Local Government Zero Waste Plans
2. Model Communities
3. Resource Recovery Parks
4. Extended Producer Responsibility for Waste
5. Environmentally Preferable Purchasing
6. Product and Packaging Design
7. Comprehensive Zero Waste Business Approaches

### 1. Local Government Zero Waste Plans

Communities can pursue Zero Waste by first setting a goal of eliminating rather than managing waste. This simple step can lead to breakthroughs when resources and the creativity of policy-makers and engineers are redirected to developing solutions based on providing clean streams of resources to local entrepreneurs.

The role of local government changes when discarded materials are treated as community enhancing assets rather than as liabilities (waste). Instead of managing liabilities, local government policies promote entrepreneurial innovation and direct that creativity to maximizing the delivery of clean resource streams to local enterprises. For updates, see 'Zero Waste Around the World' at [www.grrn.org/zerowaste/zw\\_world.html](http://www.grrn.org/zerowaste/zw_world.html).

#### Examples:

**Del Norte County, CA, USA** (population 32,000). Rural Del Norte County is the first county in the United States to guide its solid waste strategy with a comprehensive Zero Waste plan, which it adopted in 2000. Officials expect the plan to ease the conversion from a timber-oriented economy to a new, sustainable economy using local resources currently being wasted. *Contact:* Del Norte County Solid Waste Management Authority. 707-465-1100; [recycle@cc.northcoast.com](mailto:recycle@cc.northcoast.com). *More Info:* Del Norte County Waste Management Authority Zero Waste Plan, February 2000 ([www.grrn.org/order/order.html#del\\_norte](http://www.grrn.org/order/order.html#del_norte)).

**New Zealand Councils.** More than one-third of New Zealand's 74 local governments have adopted goals of Zero Waste to landfills by 2015 as of late 2001, and an effort is underway to get the goal adopted nationally. Zero Waste New Zealand Trust ([www.zerowaste.co.nz](http://www.zerowaste.co.nz)) provides a small amount of grant money to help councils get started but does not supply a blueprint – that is being developed by local officials, managers, and engineers. The Trust predicts the creation of 40,000 jobs over 10 years through converting local transfer stations to resource recovery centers, and through the resulting proliferation of reuse and recycling businesses. *Contact:* Warren Snow, [wsnow@envision-nz.com](mailto:wsnow@envision-nz.com).

#### Other communities planning for Zero Waste:

**Seattle, WA, USA** (population 534,700) adopted Zero Waste as a 'guiding principle' in 1998. The plan emphasizes managing resources instead of waste, conserving natural resources through waste prevention and recycling ([www.ci.seattle.wa.us/util/solidwaste/SWPlan/default.htm](http://www.ci.seattle.wa.us/util/solidwaste/SWPlan/default.htm)).

**Santa Cruz County, CA, USA** (population 230,000) adopted Zero Waste as a long-term goal in 1999.

**The Australian Capital Territory of Canberra** (population 300,000) adopted a No Waste by 2010 goal and plan in 1996. The plan envisions a waste-free city by 2010, with its two landfills replaced by 'Resource Recovery Estates.' Recycling has increased 80% since 1995. ([www.act.gov.au/nowaste](http://www.act.gov.au/nowaste))

**“Every day another city achieves cost effective diversion rates well above the national average, and new recycling markets, program, and processing strategies demonstrate success. ”**

— **Joan Edwards, Joan Edwards & Associates;**  
former director of recycling, cities of New York and Los Angeles

## 2. Model Communities

In the face of an unlevel playing field, many U.S. and Canadian communities are setting records for recycling and waste reduction. The U.S. national municipal recycling rate reached 28%, while many U.S. and Canada communities have cost-effectively surpassed 50% diversion from landfills.

### Examples:

**Halifax, NS, Canada** (population 330,000). Halifax reached 65% diversion from landfills in 2000, while the province reached its 50% target in October 2000. Many recyclables are banned from waste disposal. Residual waste (after recycling) is processed to remove toxics before landfilling.

**San Jose, CA, USA** (population 849,363). 60% of materials from single-family households are recycled or reused; 47% of overall municipal solid waste is diverted from landfill; businesses receive financial incentives to reduce waste.

**Loveland, CO, USA** (population 37,352). This rural community recovers 56% of residential materials for reuse and recycling using dual-collection vehicles that pick up both recyclables and trash.

### Resources:

*Cutting the Waste Stream In Half: Community Record-Setters Show How*, by Institute for Local Self-Reliance, U.S. Environmental Protection Agency, October 1999, Document EPA-530-R-99-013. ([www.ilsr.org/recycling/wrrs.html](http://www.ilsr.org/recycling/wrrs.html))

## 3. Resource Recovery Parks

Phasing out landfills and incinerators requires development of a new infrastructure to handle discards. Resource recovery parks, which locate reuse, recycling, and composting businesses close together, can be the core of a comprehensive strategy for local resource management. Local collection entrepreneurs and the public can deposit all recoverable materials at one processing facility, get paid for some of them, and buy other items at bargain prices. Some designs place the recovery park together with a waste facility or transfer station, arranged so that traffic passes recovery businesses before coming to the waste facility. When combined with incentives for recycling, disincentives for wasting, and a commitment to gradually phase out the waste facility, such an arrangement can be the

centerpiece of a Zero Waste community.

Resource recovery parks can be privately financed, or local government can create an authority whose role is to secure the land, build the core facility, and lease space to private entrepreneurs – as is frequently done for airports. When located close to appropriate industries, resource recovery parks can provide feedstocks for 'Eco-industrial parks,' where the byproducts of one industry become inputs for the next. 'Serial resource recovery systems' are a variation of resource recovery parks where a critical mass of resource conservation businesses are located in a neighborhood, but not necessarily on the same property. Repair shops and secondhand shops are good examples of existing businesses that need only to bring their services into greater synergy and prominence in a Zero Waste system.

**Urban Ore Ecopark, Berkeley, CA, USA.** Urban Ore, Inc. has pioneered the resource recovery park concept. In 2001, Urban Ore moved to a 2.2-acre former steel pipe manufacturing facility and established a building materials exchange, a hardware exchange, an arts and media exchange, a general store, and salvage and recycling activities. Two major lumberyards, a hardware store, and two other reuse facilities, all in a three-block area, provide a stream of potential customers. Urban Ore Development Associates (UODA), a spin-off of Urban Ore, designs, builds, and operate resource recovery parks. *Contact:* John Moore, UODA, 1970 Broadway, Suite 950, Oakland, CA 94612, 510-893-6300 or [jmoore@recyclelaw.com](mailto:jmoore@recyclelaw.com).

### Other Resource Recovery Parks in development:

**San Leandro Resource Recovery Park, San Leandro, CA, USA.** Waste Management, Inc. is developing a resource recovery park that recycles wood, greenwaste, curbside, and other recyclables, operates a buy-back center, and sells recycled-content soil and landscape products. Tenants include a tire recycling and crumb rubber facility and a building materials exchange. The park is at a waste transfer site.

**Monterey Regional Environmental Park, Marina, CA, USA.** This park includes public drop-off and commercial waste recycling stations, a Last Chance Mercantile reused goods resale operation, a landfill gas power project, a household hazardous waste collection facility, construction and demolition recycling operations, composting facilities, and a soils blending facility, at an existing regional landfill.

### Resources:

*Resource Recovery Parks: A Model for Local Government Recycling and Waste Reduction*, by Gary Liss for the California Integrated Waste Management Board, 2000. Gary Liss, 916-652-7850, [gary@garyliss.com](mailto:gary@garyliss.com) or [www.ciwmb.ca.gov/LGLibrary/Innovations/RecoveryPark](http://www.ciwmb.ca.gov/LGLibrary/Innovations/RecoveryPark).

*Generic Designs and Projected Performance for Two Sizes of Integrated Resource Recovery Facilities*, by Urban Ore, Inc., for the West Virginia Solid Waste Management Board, January 1995 (order at [www.grrn.org/order/order.html](http://www.grrn.org/order/order.html)).

## 4. Extended Producer Responsibility for Waste

When responsibility for waste is shifted from taxpayers, as is commonly the case in communities today, to producers and consumers, producers have an incentive to redesign products for Zero Waste. Extended Producer Responsibility (EPR) for waste, or Producer Take Back, holds manufacturers, and specifically brand owners, responsible for managing their products and packaging at the end of their useful life. EPR policies in Europe have led to recycling rates close to 90% and high recycled content, as well as an emphasis on reusable and returnable packaging. The policy has spread to other countries as well, including Canada and nations in Asia and Latin America. Often, U.S.-based companies follow EPR requirements in other countries but do not replicate the programs in the United States.

### Examples of EPR programs in the United States and Canada:

#### Deposit Systems for Beverage Containers.

Deposit systems transfer the costs of recycling from taxpayers to consumers and beverage manufacturers. Deposits are not only fair; they work. In the ten U.S. states with container deposits, recycling rates average 80% for containers covered by deposits, compared with far less in non-bottle bill states (for example, around 10% for plastic soda bottles in non-bottle bill states). In Canada, where the beer industry invested in refillable glass bottles, 97% of bottles are returned to the producer for refilling (see [www.thebeerstore.ca](http://www.thebeerstore.ca)).

**Take-Back Programs for Toxics.** British Columbia Product Stewardship laws require producers to take back household chemicals such as paint, thinners, pesticides, fuels, and medicines for recycling or

safe disposal. Millions of gallons of these toxic chemicals are collected at industry-funded depots at no cost to local communities. The costs create incentives for producers to keep toxic leftovers to a minimum.

**Local Take Back to Retail.** Ottawa, Canada, and Washington County, MN, U.S.A, have implemented successful programs targeting problematic wastes not covered by curbside programs, as an alternative to taxpayer funded Household Hazardous Waste programs. Retailers like the program for its free publicity and opportunity to get return customers. These are examples of voluntary Retailer Responsibility programs that can complement other Producer Responsibility programs.

### Web Resources:

GrassRoots Recycling Network [www.grrn.org/resources/producer\\_responsibility.html](http://www.grrn.org/resources/producer_responsibility.html)

Institute for Local Self-Reliance [www.ilsr.org/recycling/epr.html](http://www.ilsr.org/recycling/epr.html)

INFORM, Inc. [www.informinc.org/eprgate.htm](http://www.informinc.org/eprgate.htm)

U.S. Environmental Protection Agency [www.epa.gov/epr](http://www.epa.gov/epr)

## 5. Environmentally Preferable Purchasing

Any organization, business, or individual can promote Zero Waste by altering buying habits. Many government agencies and companies have already adopted preferences for recycled content products. Many are now moving to broader, environmentally preferable purchasing programs seeking to reduce resource use, cut air and water emissions, or achieve other environmental goals. Purchasing practices can target:

- materials purchased for manufacturing products and packaging;
- products purchased for use within the organization;
- packaging for products and materials delivered to the organization; or
- products specified through contractors, such as direct mailers, billing agents, printers, copier companies, office products retailers, architecture and construction companies.

## Examples:

**U.S. Federal Agencies.** As a result of Executive Orders in the 1990s, federal agencies are taking the lead in buying recycled paper and other recycled products, as well as products that include features such as reduced toxics and reduced energy needs ([www.epa.gov/oppt/epp/gentt/resource/total5.html](http://www.epa.gov/oppt/epp/gentt/resource/total5.html)).

**King County, WA, USA.** A national leader in buying environmentally preferable products ([www.metrokc.gov/procure/green](http://www.metrokc.gov/procure/green) See also Pacific Northwest Pollution Prevention Resource Center [www.pprc.org/pprc/pubs/topics/envpurch.html](http://www.pprc.org/pprc/pubs/topics/envpurch.html)).

## 6. Product and Packaging Design

Many companies have been innovative in redesigning products, whether to reduce costs or to meet government incentives or requirements. Some have redesigned packaging to minimize materials. Others have redesigned products for ease of reuse and recycling. Still more have transformed the concept of their products to eliminate waste. Extended Producer Responsibility encourages manufacturers to design products for easy disassembly, to minimize the cost of manufacturer responsibility for recycling.

**Interface, Inc.** (Dalton, GA, USA) This maker of commercial carpets is changing its focus from providing a product to providing a service, leasing carpets to customers and taking back old carpet and tiles for refurbishing or recycling. Interface also pioneered the practice of installing carpet in tiles, so that only the high wear places need to be replaced when worn out.

**Herman Miller** (Zeeland, MI, USA) In manufacturing office furniture, Herman Miller used to receive molded plastic chair seats in single-use cartons containing shells in bags, separated by chipboard sheets, placed 56 to a double-sided corrugated box. After unpacking the seats and assembling the chairs, Herman Miller was left with 30 pounds of packaging for every 56 chairs. The company developed, with its vendor, a protective rack that stores 90 seats in the space that previously housed 56 and can be reused 80 to 100 times or more.

## 7. Comprehensive Zero Waste Business Approaches

Businesses pursue Zero Waste in many ways, in addition to redesigning products. For example:

- Re-evaluating products and services to create the greatest consumer and environmental value, within economic feasibility;
- Minimizing excess materials and maximizing recycled content in products and packaging;
- Finding productive uses for, reuse, recycling, or composting over 90% of their solid waste;
- Reducing procurement needs, then specifying products that meet Zero Waste criteria;
- Establishing easily accessible repair systems, as well as recovery processes for packaging and products.

**Collins & Aikman**, Dalton, GA, USA ([www.collinsaikman.com](http://www.collinsaikman.com)). Makers of automotive fabric and trim, the company sent zero manufacturing waste to landfill in 1998. Waste-minimization and energy-efficiency programs boosted production 300% and lowered corporate waste 80%.

**Xerox Corporation**, Rochester, NY, USA ([www.xerox.com](http://www.xerox.com)) In 1999, the company's non-hazardous solid waste recycling rates worldwide reached 87% and beneficially managed 94% percent of hazardous waste through recycling, treatment, or fuels blending.

**ZERI Breweries**, Namibia (Africa), Sweden, Canada and Japan ([www.zeri.org/systems/brew.htm](http://www.zeri.org/systems/brew.htm)) The Zero Emissions Research and Initiative Foundation has helped design breweries that utilize 40 different biochemical processes to reuse everything, including heat, water, and wastes. A digester transforms organic wastes into methane gas for steam for fermentation. Spent grain is used to grow mushrooms. Alkaline water supports a fish and algae farm.

**Fetzer Vineyards**, Hopland, CA, USA ([www.fetzer.com](http://www.fetzer.com)) then "Fetzer Story", then "Environmental Philosophy". Fetzer recycles paper, cardboard, cans, glass, metals, antifreeze, pallets, and wine barrels; composts corks and grape seeds. Garbage was reduced by 93% in the past several years, with a goal of no waste by 2009.