

Best Management Practices: Zero Waste & Recycling Plans

NERC Fall 2012 Conference

October 23, 2012, Northampton, MA

By Gary Liss & Associates

916-652-7850 gary@garyliss.com; www.garyliss.com

Zero Waste =

Reduce

Reuse

Recycle

**Focus First on Reducing & Reusing,
Then Recycle & Compost the Rest**

ZWIA Definition of Zero Waste*

- Zero Waste is a goal that is ethical, economical, efficient and visionary, to guide people in changing their lifestyles and practices to emulate sustainable natural cycles, where **all discarded materials are designed to become resources for others** to use.
- Zero Waste means designing and managing products and processes to systematically avoid and eliminate the volume and toxicity of waste and materials, conserve and recover all resources, and **not burn or bury them**.
- Implementing Zero Waste will **eliminate all discharges to land, water or air** that are a threat to planetary, human, animal or plant health.

* http://zwia.org/joomla/index.php?option=com_content&view=article&id=12&Itemid=5

Zero Waste & Climate Change

- Landfills are one of the largest sources of Greenhouse Gases (GHG)
- Methane is 21-72x more potent than CO₂
- 71 Tons “Upstream” For Every Ton MSW
- Recycling & composting all discards in CA = eliminating all auto exhaust in CA
- Urban Env't. Accords is only Cool Cities program that includes Zero Waste



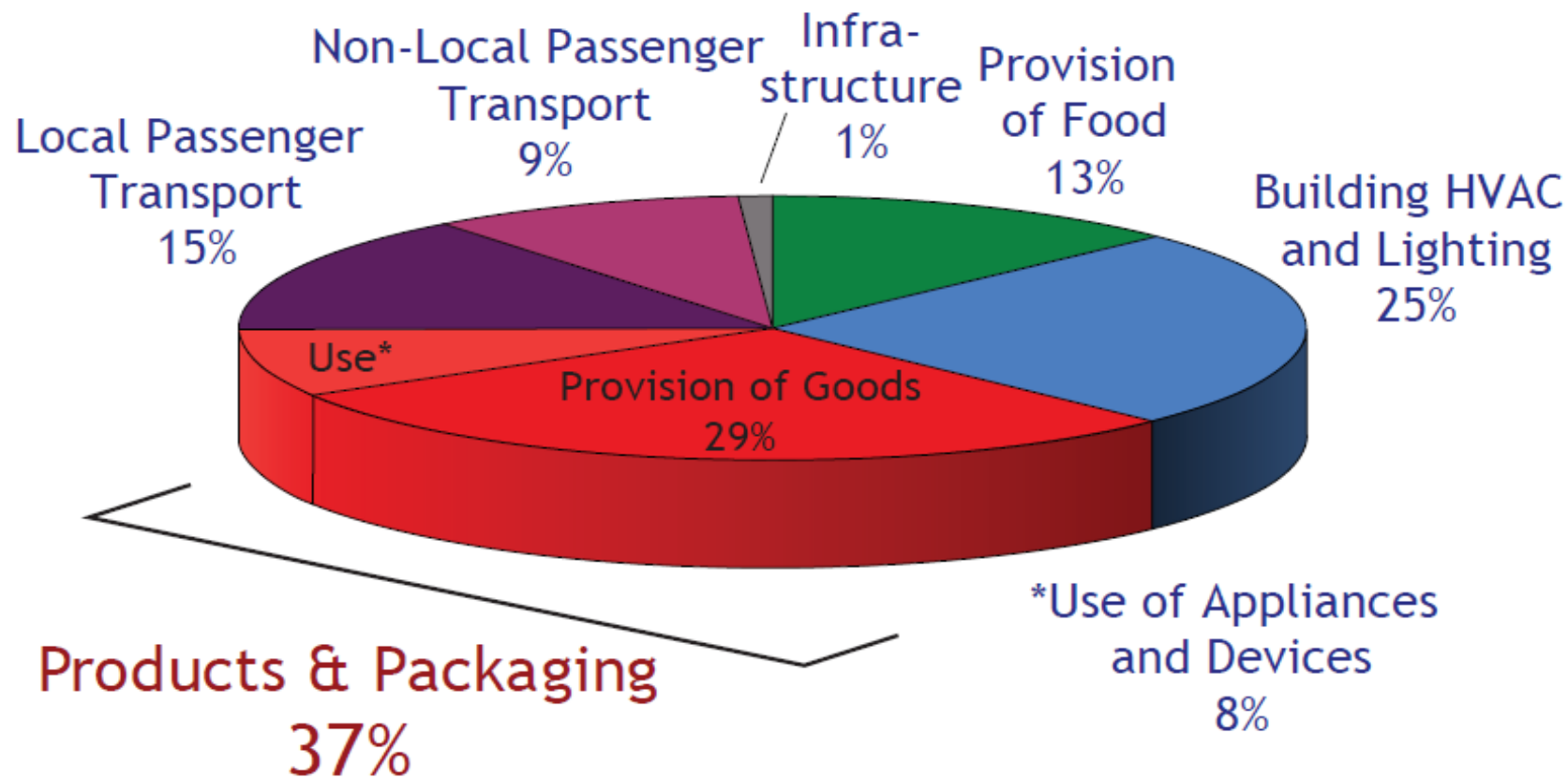


Figure 1: U.S. Greenhouse Gas Emissions: Systems-based view.
 Source: U.S. EPA, 2009.

(Provision of Goods: all consumer goods including building components and vehicles.)

Zero Waste and Jobs

- **Recycling Industry =
Size of Auto Industry**
- **10,000 tons of SW =**
Landfill - 1 job
Composting – 4 jobs
Recycling – 10 jobs
Reuse – 75 –250 jobs

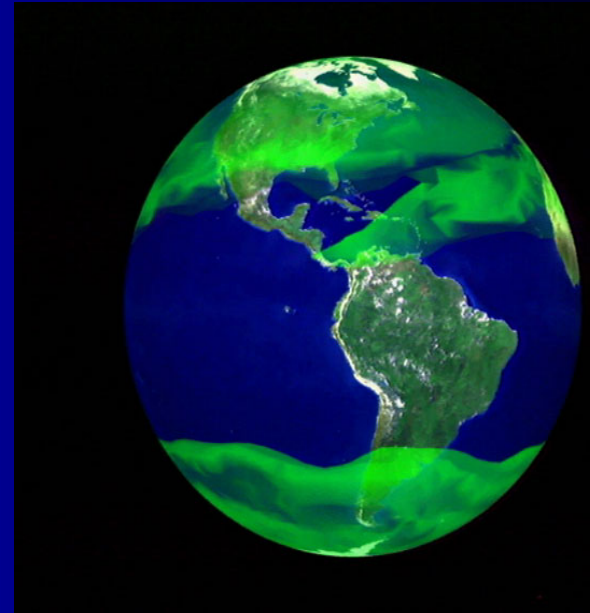
Source: www.ilsr.org

Zero Waste Cost Savings

- **All Zero Waste Businesses have saved money**
- **Save the most money by Reducing Waste**
- **Save the next most by Reuse Systems**
- **Save some \$ through recycling and composting IF rates are structured right**

Is Zero Waste Attainable ?

- **Nature Is The Model**
- **Zero Waste, Or Darn Close**
- **Businesses Have Achieved Over 90% Waste Reduction**



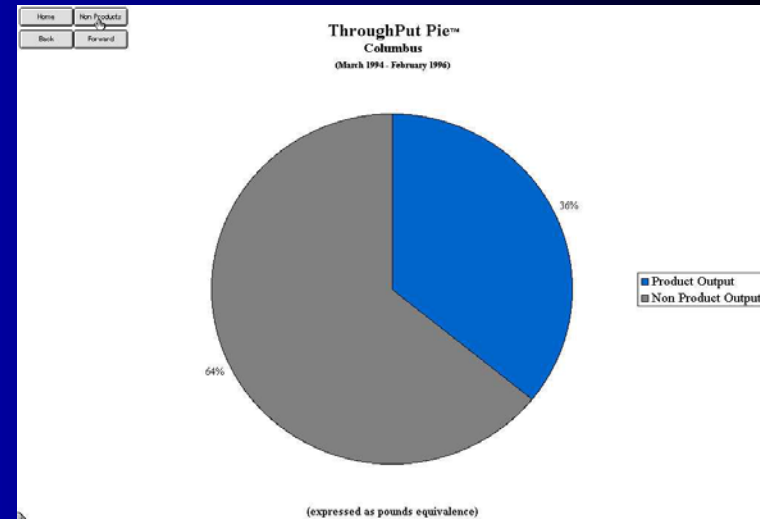
Businesses are Leading the Way to Zero Waste (>90% diversion)

- **Anheuser-Busch, Fairfield, CA**
- **Apple Computer, Elk Grove, CA**
- **Atlanta Zero Waste Zone**
- **Epson, OR**
- **Fetzer Vineyards**
- **Frankie's Bohemian Café, SF**
- **Greens Restaurant, SF**
- **Hewlett-Packard, Roseville, CA**
- **Honda**
- **Mad River Brewery**
- **New Belgium Brewery**
- **Pillsbury**
- **Playa Vista, LA, CA**
- **Ricoh Electronics**
- **San Diego Wild Animal Park**
- **Scoma's Restaurant, SF**
- **Subaru**
- **Toyota**
- **Vandenburg Air Base**
- **Vons-Safeway**
- **Xerox Corp**
- **2800 Businesses in Japan**

See www.earthresource.org

Why would a business DO this?

- Saves Money
- Reduces Liability
- Increases Efficiency
- Reduces GHG and emissions
- Marketing Edge
- “Right Thing To Do”



Source: Gil Friend, Natural Logic

Zero Waste Opportunities

- **Zero Waste Programs are fastest and most cost effective ways that local governments can contribute to:**
 - **Reducing climate change**
 - **Promote local sustainability**
 - **Protect health**
 - **Create green jobs**

Zero Waste Communities*

- Over 60 Cities in Italy
- Toronto, Ontario
- Buenos Aires, Argentina
- Seattle, WA
- Chicago, IL
- Central Vermont Waste Mgt. District
- Logan County, OH
- 2/3 of New Zealand cities
- Austin, TX
- Telluride, CO
- Boulder City & County, CO
- Summit County, CO
- Sedona, AZ
- Nelson, British Columbia (BC)
- Regional Districts BC
 - Kootenay Boundary
 - Central Kootenay
 - Cowichan Valley
 - Sunshine Coast
- Halifax, Nova Scotia

* Adopted goal; ZWIA.org

CA Zero Waste Communities*

- Del Norte County
- San Luis Obispo Co.
- Rancho Cucamonga
- Santa Monica
- El Cajon
- Fresno
- Burbank
- City of Los Angeles
- Glendale
- Oceanside
- Culver City
(Sustainability Plan)
- San Francisco
- Oakland
- San Jose
- Santa Cruz County &
all cities in County
- Berkeley
- Palo Alto
- Marin County
- Novato
- Fairfax
- Sunnyvale

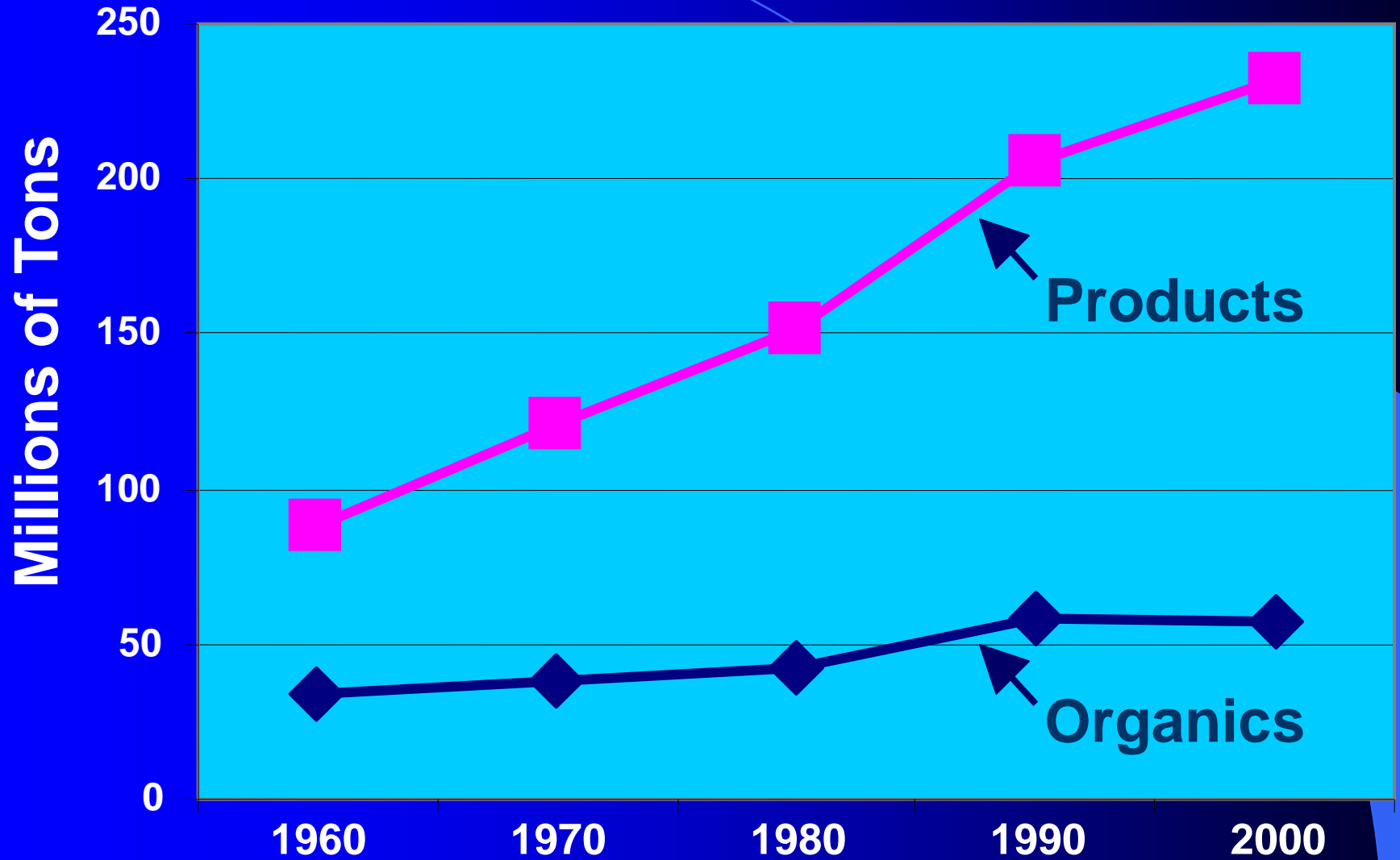
*Adopted ZW Goal

Pillars of Zero Waste

- **Upstream**
- **Downstream**
- **Green Businesses & Jobs**

*Total
Weight*

US Municipal *Discards* 1960-2000



Source: Bill Sheehan, Product Policy Project

CA 20-Year History of Product Stewardship

| Programs in CA | Responsibility |
|-------------------------------|---------------------------------|
| Beverage Containers | Govt.–Producers – Retail |
| Tires | Government – Retailers |
| Used Oil | Government – Retailers |
| Monitors | Govt.–Producers – Retail |
| Cell Phones | Retailers Takeback |
| Rechargeable Batteries | Retailers Takeback |
| Paint | Producers |
| Carpet | Producers |

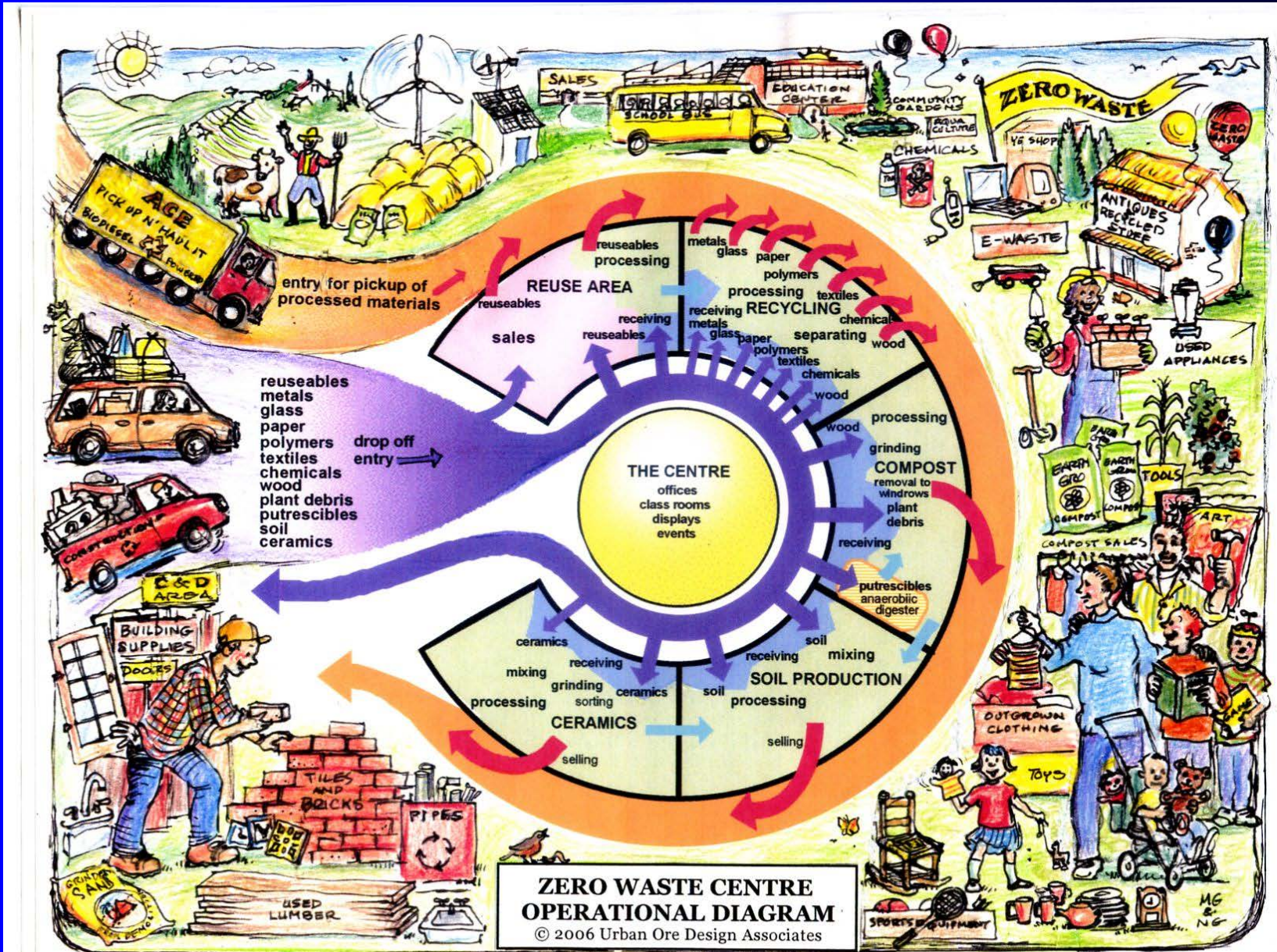
Extended Producer Responsibility

- **Businesses take back products and packaging at no cost to the public**
- **Advocate for state and national EPR policies**
- **Incentive to redesign products to be less toxic and easier to reuse and recycle**
- **Don't export harm and properly reuse, recycle or compost**
- **Support small, local businesses and nonprofits**

Downstream

- **Reduce - “Waste” is not inevitable**
- **Reuse products and packaging, retaining their original form and function**
- **Recycle or compost the rest**
- **Resource Recovery Parks**

Resource Recovery Park, U.K.



Green Businesses & Jobs

- Expand, attract, and support **green businesses and green collar jobs**
- Reserve sufficient land for **zero waste infrastructure**
- Reinvest resources **locally**
- Develop **new markets**

EPA Region 1 Zero Waste eGuide Design

- **Issues and Challenges**
- **How To Become A Zero Waste Community**
 - **Process Steps**
 - **New England Examples**
 - **National Examples**
 - **Resources and Tools**

Process Steps: How To Become A Zero Waste Community

1. Assess
2. Define
3. Launch
4. Adopt
5. Plan
 - Analyze
 - Evaluate
 - New Rules
 - Programs & Facilities
6. Procure
 - Economics, Impacts & Timing
 - Draft Plan
7. Administer
8. Re-Assess

Pieces of Zero

- **Comprehensive recycling programs**

- As convenient as trash
- Multi-material
- Available to all generators



- **Organics diversion**

- Yard trimmings
- Food scraps
- Compostable paper

- **C&D diversion**

- **Zero waste policies**

- “New rules”
- Disposal bans
- Mandatory
- EPR

- **Outreach & TA**

- **Infrastructure**

- Reuse
- Resource Recovery Parks

Zero Waste Plan Scope

- **Review Data, Policies and Programs**
- **Participation Strategy**
- **Service Opportunities Analysis**
- **Policies, Programs and Facilities Options**
- **Economics & Impacts (Jobs, GHG)**
- **Implementation Plan (including timeline & “low-hanging fruit” for quick success)**

10 Year Generic ZW Strategy*

Years 1-4: Access to Services to 50%

- **Set a Community Zero Waste Goal**
- **EPR programs**
- **Universal recycling**
 - **SFDs, MFDs and Businesses (ICI)**
 - **PAYT pricing**
- **Organics collection from SFDs**
 - **Weekly collection: food + yard**
 - **Every other week: trash**
- **C&D deposit for building permit**
 - **70% inerts, 50% mixed debris**
- **Fund Community Education \$2/pp/year**

*Based on presentation of Eric Lombardi, Eco-Cycle to SWANA, 2/16/11

10 Year ZW Strategy

Years 5-8: Building Participation to 70%

- **Mandatory recycling and composting for SFDs, MFDs and ICI**
- **Every other week trash service**
- **Increase C&D recovery to 100% inerts, 75% mixed debris**
- **Expanded local and state EPR and New rules (recyclable/compostable packages)**
- **Government purchasing (Take-back and toxics reductions)**
- **Fund Community Education \$3/pp/year**
- **Residue Analysis**

10 Year ZW Strategy

Years 9-10: Linking with Industry to 90%

- **EPR is funding at least half of ZW System Costs**
- **Zero Waste labeling (consistent guidelines, education)**
- **Product bans and taxes (e.g., bags, bottled water, coffee cups)**
- **Hammer down on mixed waste**
- **Education – FEEDBACK – Education**

The Zero Waste Economy

Designing a Full-Cycle System—Upstream AND Downstream





INTERNATIONAL ALLIANCE

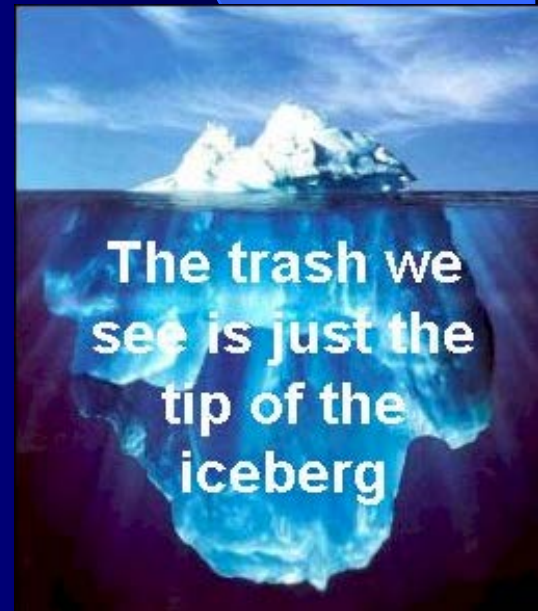
working towards a world without waste

GLOBAL PRINCIPLES FOR
ZERO WASTE COMMUNITIES

www.zwia.org

ZWIA Community Principles

1. Adopt ZWIA Zero Waste definition
2. Establish goals and timeline
3. Engage the whole community
4. Manage Resources not Waste
5. Program Funding
6. Education & Outreach
7. Zero Waste Assessments



ZWIA Community Principles

8. Residual Separation & Research Facilities

9. End Subsidies for Wasting

10. Zero Waste Businesses

GRRN KEYS TO ZERO WASTE

11. New Rules and Incentives

12. Extended Producer Responsibility

13. Zero Waste Procurement

14. Zero Waste Infrastructure

Key Zero Waste Issues

- **Multiple measures – Per Capita & 90%**
- **Recover Value Not Just Tons**
- **Recycle Some. Recycle More. Recycle Less.**
- **Reduce 1st – Waste is Not Inevitable**
- **Efficiency is Key – Who made mistake?**
- **After 3Rs, What Would Nature Do?**

1st Adopt ZWIA Definition

- **Federal, State and Local agencies Adopt ZWIA Definition of Zero Waste**
- **Business & Community Zero Waste Plans Use ZWIA Definition of Zero Waste**
- **Sustainability or Climate Change Plans Include ZWIA Definition of Zero Waste**

90% is Key Measure of Progress to Zero Waste

- “Zero Waste to landfill or incineration – We divert more than 90% of the solid wastes we generate from Landfill from all of our facilities. No more than 10% of our discards are landfilled. No solid wastes are processed in facilities that operate above ambient biological temperatures (more than 200 degrees F.) to recover energy or materials.”

Source: ZWIA Zero Waste Business Principle #3

Zero Waste Resources

➤ **Austin Adopted ZW Plan:**

www.ci.austin.tx.us/sws/downloads/VeryFinalZWPlan.pdf

➤ **Austin Adopted Resource Recovery Master Plan:**

<http://www.austintexas.gov/news/austin-city-council-approves-30-year-plan-reach-zero-waste>

➤ **Oakland Zero Waste Plan:**

www.zerowasteoakland.com/AssetFactory.aspx?did=2123

➤ **GrassRoots Recycling Network:** www.grrn.org

➤ **Zero Waste International Alliance:** www.zwia.org

➤ **Earth Resource Foundation:** www.earthresource.org

➤ **U.S. Zero Waste Business Council:** www.uszwbc.org

Zero Waste Resources

- **EPA Zero Waste Roadmap Wiki**
<http://zerowasteroadmap.wikispaces.com/>
- **EPA WasteWise Program Resource Management Contracting**
www.epa.gov/smm/wastewise/wrr/rm.htm
- **MassDEP Waste Reduction Toolkit - ZW Module**
www.mass.gov/dep/recycle/reduce/wrtoolkit.htm#zero
- **ZW Brain Trust List of EPA Region 1 Jurisdictions with Zero Waste and High Diversion Goals**
<http://zwbraintrust.wordpress.com>
- **Stop Trashing the Climate**
www.ilsr.org/stop-trashing-the-climate-2
- **Story of Stuff** www.storyofstuff.com

Resolution for Zero Waste

WHEREAS:

- The placement of materials in waste disposal facilities, such as landfills and incinerators, causes damage to human health, wastes natural resources and/or inappropriately transfers liabilities to future generations, and**
- Landfills are the single largest man-made source of methane in the United States, and contribute significantly to global warming, and**
- Reduced wasting, and increased reuse, recycling and composting could dramatically help reverse climate changes, and**
- Communities are currently forced to assume the high financial cost of collecting, recycling, and disposing of increasingly complex and toxic products and packaging, which is an unfunded mandate, and**
- A resource management based economy will create and sustain more productive and meaningful jobs, and**
- Subsidies for wasting and use of virgin materials send the wrong economic signals to both consumers and producers, and**
- Federal, state and local governments around the world are adopting policies to hold producers financially and/or physically responsible for collecting, recycling, and properly handling of products and packaging, and**

Resolution for Zero Waste

Producers should design products to ensure that they can be safely reused or recycled back into the marketplace or nature, and
Most toxic product and packaging waste can be eliminated through the use of non-toxic alternatives in product design, and
Voluntary recycling goals have not reduced wasting sufficiently, and
Zero Waste policies and programs will establish practical ways in our community to eliminate waste or safely reuse, recycle or compost discarded products and packaging;

THEREFORE, BE IT RESOLVED THAT

The [City/ County/ Organization] hereby **adopts a Zero Waste goal** and directs staff to **return with a Zero Waste Plan** to implement that goal within one year.



**If you're not for Zero Waste,
how much waste are you for?**