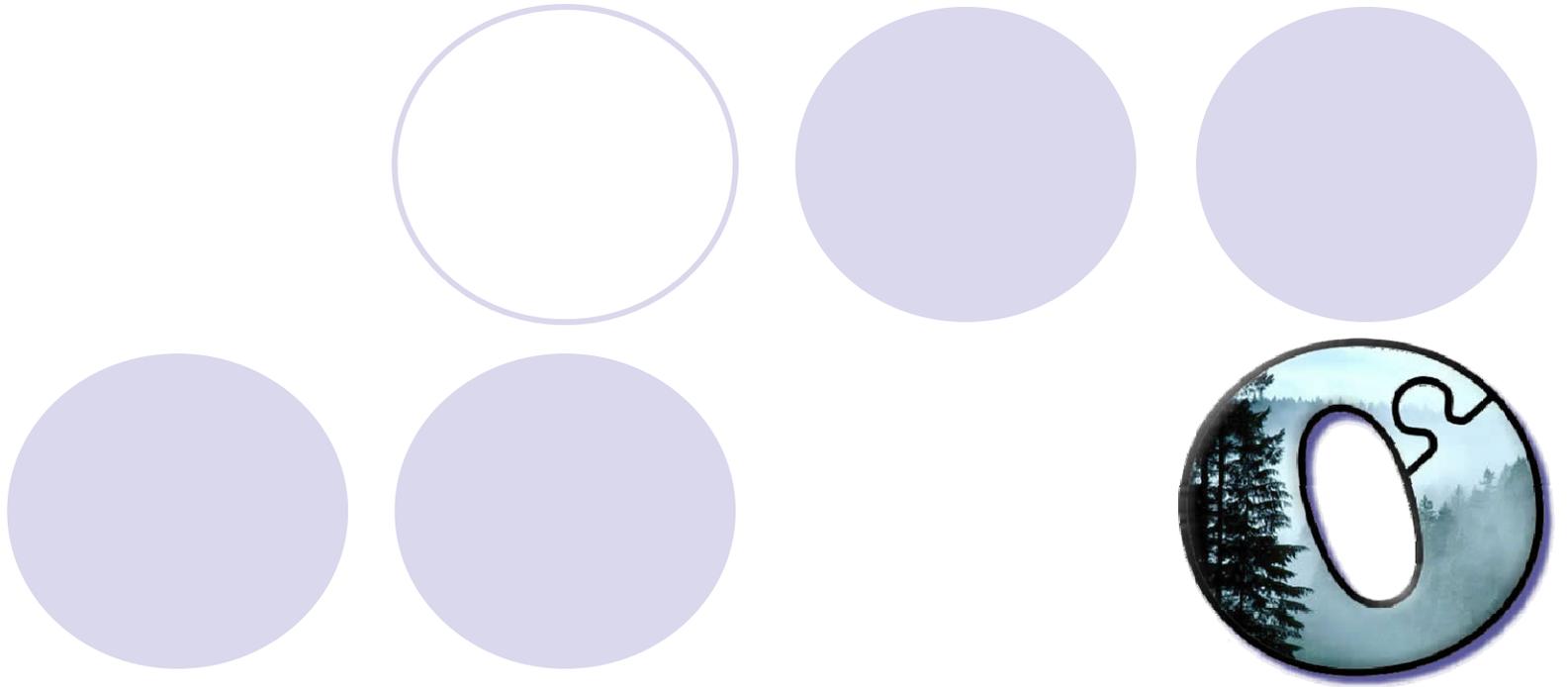
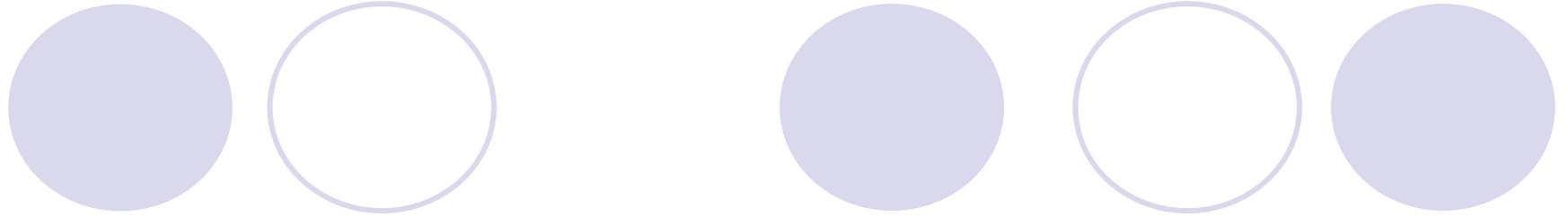


# Zero Waste

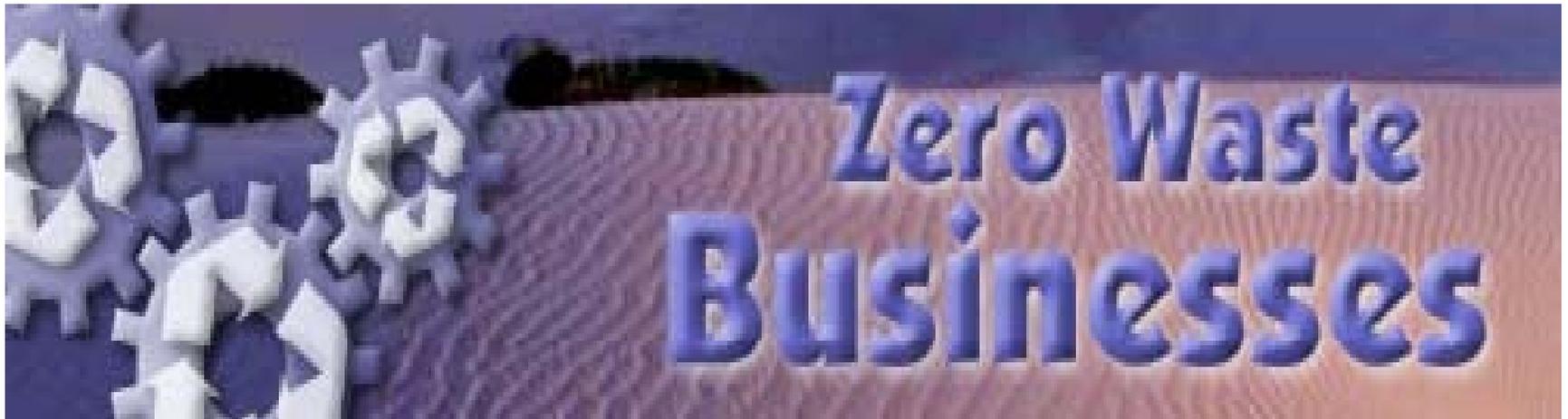
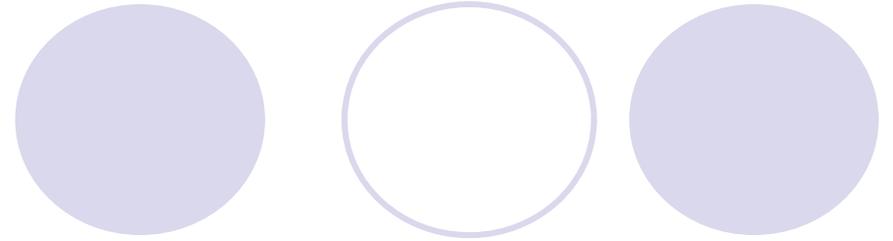
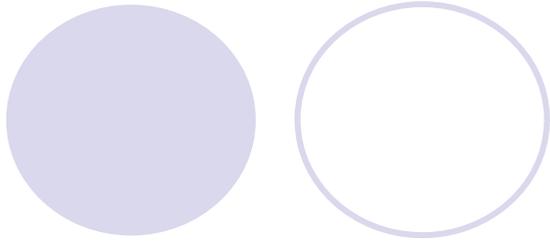


**Linda Christopher**  
**GrassRoots Recycling Network**  
*beyond recycling—zero waste*



“We treat each tree as wood until nothing remains which is serviceable as wood, and then we treat what remains as a chemical compound to be broken down into other chemical compounds which we can use in our business..... we keep the waste and earn money from it.”

*–Henry Ford*





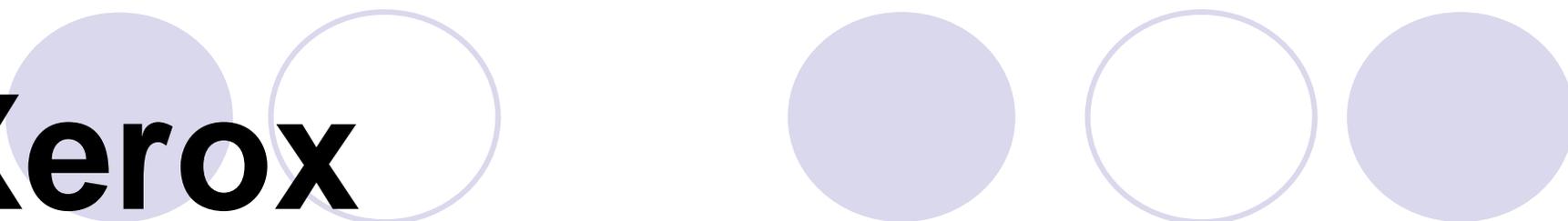
# Collins & Aikman

- [www.collinsaikman.com](http://www.collinsaikman.com)
- Dalton, GA
- Automotive fabric & trim
- Sent zero manufacturing waste to landfill in 1998.
- Waste-minimization & energy efficiency programs boosted production 300% and lowered corporate waste by 80%

*Profiles available at [grrn.org/business](http://grrn.org/business)*

# Pillsbury

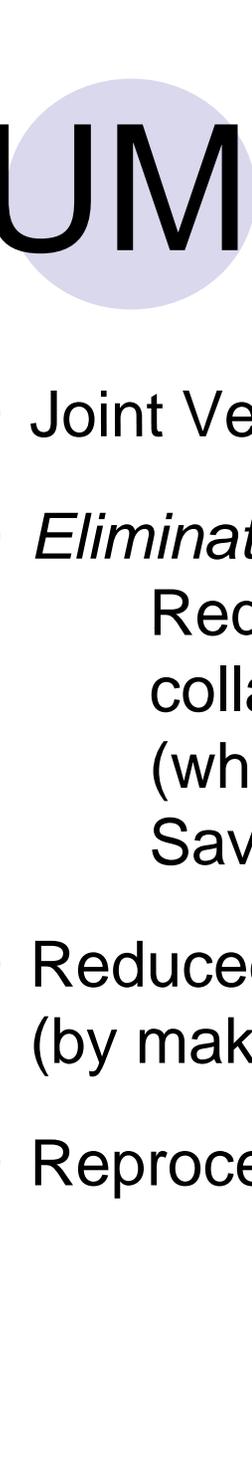
- [www.pillsbury.com/about/successstories.asp](http://www.pillsbury.com/about/successstories.asp)
- Adopted policy to eliminate potentially harmful discharges to air, water and land.
- Goal is to reduce waste 10% year.
- Eden Prairie MN diverts 96% waste
- Chanhassen MN diverts 94% waste
- Current savings is \$500,000 per year



# Xerox

- [www.xerox.com](http://www.xerox.com)
- Rochester, NY
- 87% worldwide solid waste recycling in 1999
- 94% worldwide hazardous waste recovery in 1999
- Savings \$45 million dollars
- 1998, Xerox set environmental requirements for its suppliers worldwide to design products that are durable and reusable. Xerox is asking all of its facilities and suppliers to achieve a 90% reduction in all emissions from a 1990 baseline.

# NUMMI

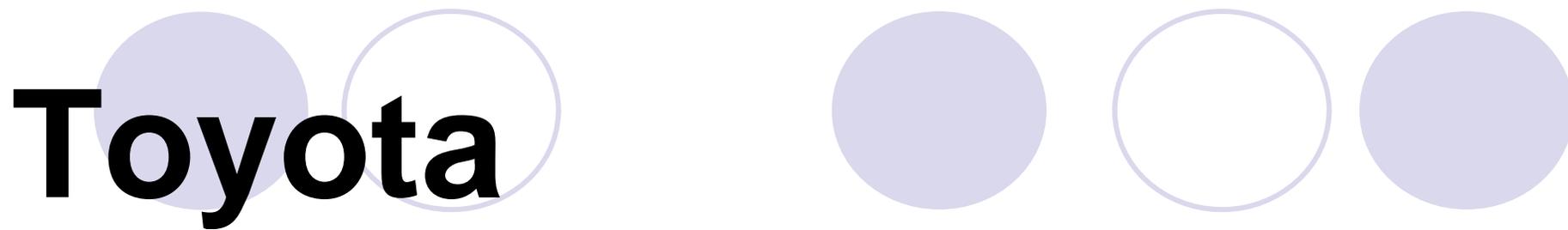


- Joint Venture of General Motors & Toyota in Fremont, CA
- *Eliminated* cardboard containers  
Required suppliers to use reusable, collapsible, plastic shipping containers (which NUMMI reverse ships to them)  
Savings= \$20 million dollars/year
- Reduced hazardous chemical usage by 50% (by making changes in the delivery lines).
- Reprocess used waste solvents for 2/3 savings.



# Interface Flooring Systems

- Headquarters in Ontario, Canada. Operations in 110 countries, 29 production facilities, 7000 employees
- Eliminated all regulated hazardous chemicals from carpet manufacturing in Ontario, saved \$\$, increased carpet life.
- Eliminated all process water consumption.  
(Replaced printed carpet with embroidered carpet.)
- Eliminated all heavy metals in manufacturing at Ontario plant.
- Reduced inputs of raw materials, reduced air emissions in manufacturing.
- Ultimate goal is to have zero emissions, recycle all their products, use solar energy, and become a “regenerative industry.”
- Savings worldwide operations is US \$90 million dollars

The word "Toyota" is written in a large, bold, black sans-serif font. Behind the letters 'o', 'y', and 'a' are three overlapping circles: a solid light purple circle behind 'o', a white circle with a light purple outline behind 'y', and a solid light purple circle behind 'a'. To the right of the word, there are three more circles: a solid light purple circle, a white circle with a light purple outline, and another solid light purple circle.

# Toyota

- [www.toyota.com/about/environment](http://www.toyota.com/about/environment)
- Toyota, North America
- HQ is Zero Waste to Landfill
- 5 Distribution Centers that are ZW to Landfill
- 10 plants near Zero Waste  
(95% reduction of waste to landfill from 1999 baseline.)
- 12 Distribution Centers that have 90%-plus recycling rates.

# Ricoh Electronics

- [www.ricoh.com/environment](http://www.ricoh.com/environment)
- REI: 7 facilities, \$1.1 billion in annual sales, 1500 employees
- 6,000 tons of waste disposed in 1998.
- Zero Waste to Landfill in April 2001



# Aiming for Zero Waste

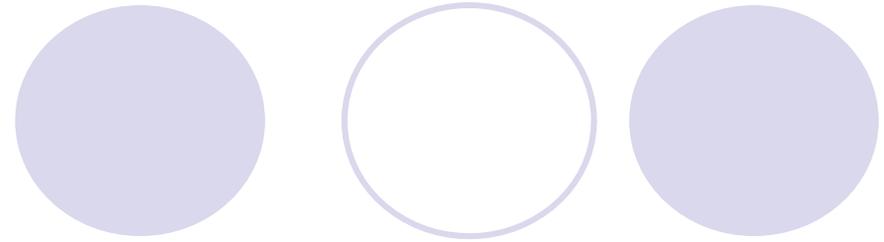
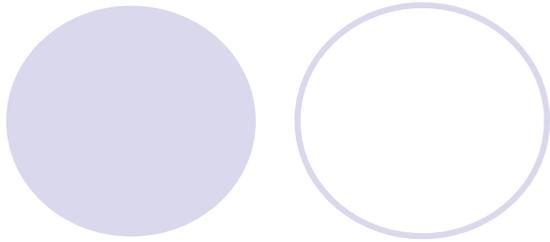
Zero Waste is not recycling as much as possible.

# Aiming for Zero Waste



Zero Waste is not recycling as much as possible.

Any expenditure of time, money, material, effort or other resource that does not generate perceptible value for the customer



*Recipe for Success 7: Use of 5R Concept*



## 5R Concept



**REFUSE**

- Avoid buying unnecessary waste



**RETURN**

- Return packaging materials to suppliers



**REDUCE**

- Reduce waste at the source



**REUSE**

- Re-use everything possible

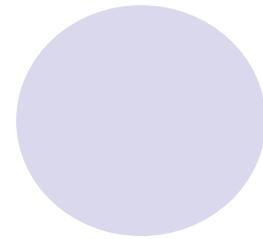
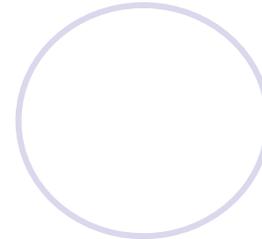
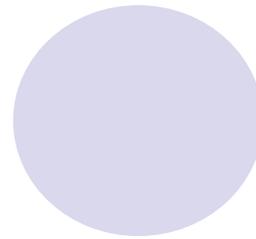
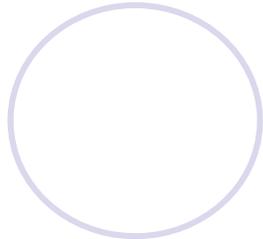
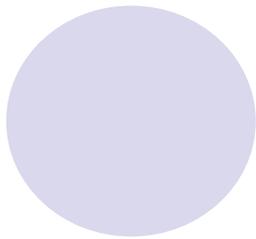


**RECYCLE**

- Recycle any remaining waste streams



**RICOH**



## Employee Improvement (Treasure)



**REFUSE**



**RETURN**



**REUSE**

- ✦ Refuse Waste Packing Materials
- ✦ Return New Packing Trays to Supplier
- ✦ Reuse Plastic Tray
- ✦ Reduce Labor and Material Costs

**RICOH**



**Supplier**



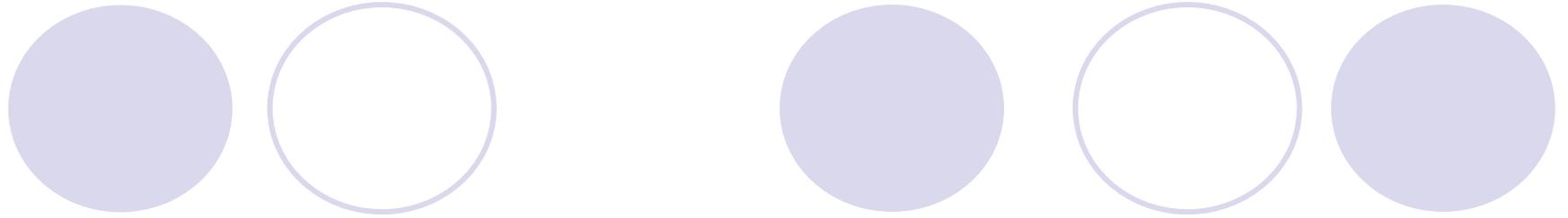
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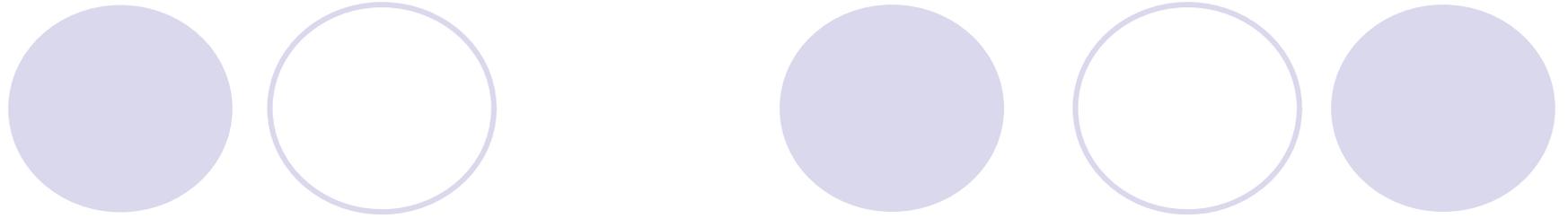
Continuous Improvement. Kaizen.

Zero Defects, Zero Accidents, Zero Emissions



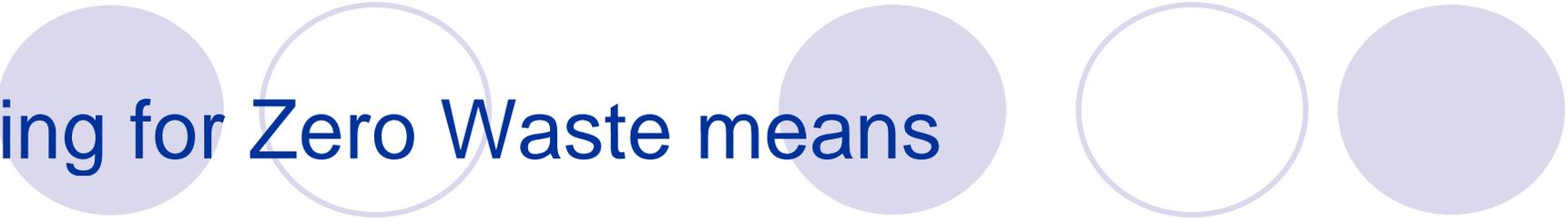
“We have a large salvage department, which apparently earns for us twenty or more million dollars a year. As that department grew...we began to ask ourselves: ‘Why should we have so much to salvage? Aren’t we giving more attention to reclaiming than to not wasting?’”

—*Henry Ford, 1930*



[www.grrn.org](http://www.grrn.org)

[www.zeroheroes.biz](http://www.zeroheroes.biz)



# Aiming for Zero Waste means

Redesigning products for reuse, remanufacturing, and recycling

Manufacturers take full responsibility for the entire lifecycle of their products

Successful programs model natural cyclical processes where no waste exists

This does not mean we no longer use resources or generate outputs. Rather all outputs generated—deliberately or otherwise—must be redesigned to be a useful input into another process

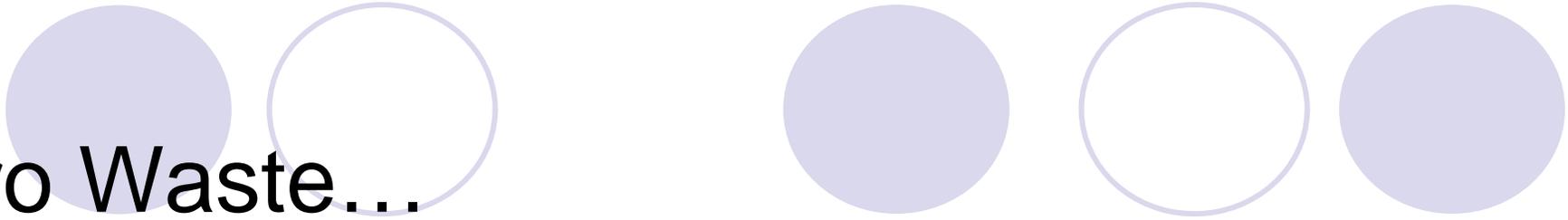


# CA Zero Waste Communities

- **CIWMB Strategic Plan**
- **San Luis Obispo County**
- **Del Norte County**
- **Burbank (informally)**
- **San Bernardino County Zero Waste Communities (informally)**

## **SF Bay Area**

- **San Francisco**
- **Oakland**
- **Santa Cruz County & all cities in county**
- **Berkeley**
- **Palo Alto**



Zero Waste...

***... is a philosophy and a design principle for the 21st Century;***

***... it is not simply about putting an end to landfilling because aiming for Zero Waste is not an end-of-pipe solution***



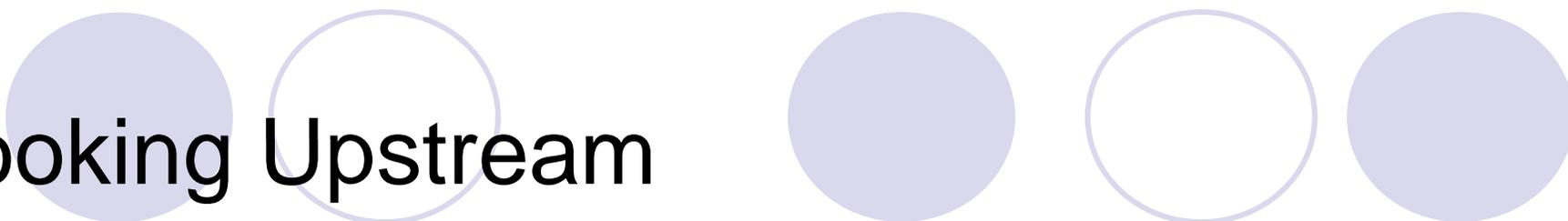
Zero Waste = Zero Waste Economy

- **Zero Waste is not about creating more government & hauler programs.**
- **Zero Waste is about energizing local entrepreneurs to use undervalued resources.**



Zero Waste = Zero Waste Economy

- **Materials that flow into our community don't become an expensive liability, but resources for businesses and a sustainable economy**

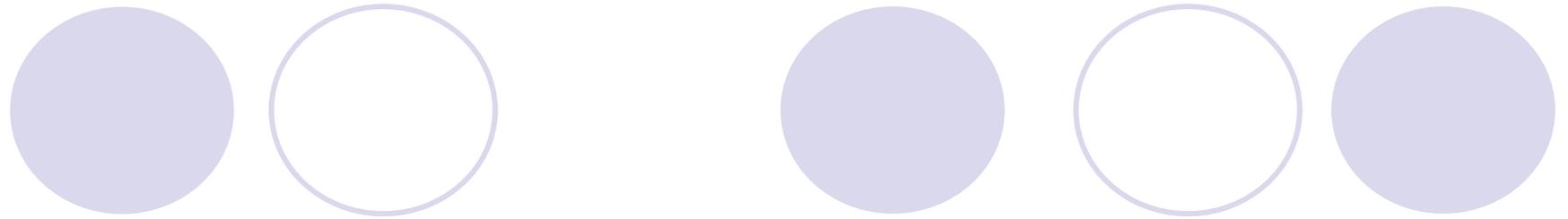


# Looking Upstream

*Every product has its hidden history*

*—Paul Hawken*

- **1: 71** curbside waste: upstream waste
- **1: 100** durable products: upstream waste
- **1: 4,000** laptop computer: upstream waste
- **1: 100,000** semi-conductor: upstream waste



The GrassRoots Recycling Network  
is a national nonprofit dedicated to developing, advocating  
and implementing Zero Waste

[www.grrn.org](http://www.grrn.org)