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Green Supply Chain Example





Whole Foods Market Whole Body Packaging Guidelines and Details



EXPO WEST

Responsible Packaging Awards

March 2010



Anaheim Responsible Packaging Awards

Anaheim Convention Center

March 11, 2010

4:00 PM Room 205B

Recognizing Achievements and Innovations in Responsible Packaging:

- * 100% rPET
- * Non GMO
- * 100% PCR
- * 100% rHDPE
- * Compostable
- * Regional, Reusable
- * Refillable, Returnable
- * FSC Certified

Co-Sponsored By:



Organic Food Industry Packaging Guidelines and Details



Responsible Packaging Guidelines' Three Legs (responsible-packaging.org)

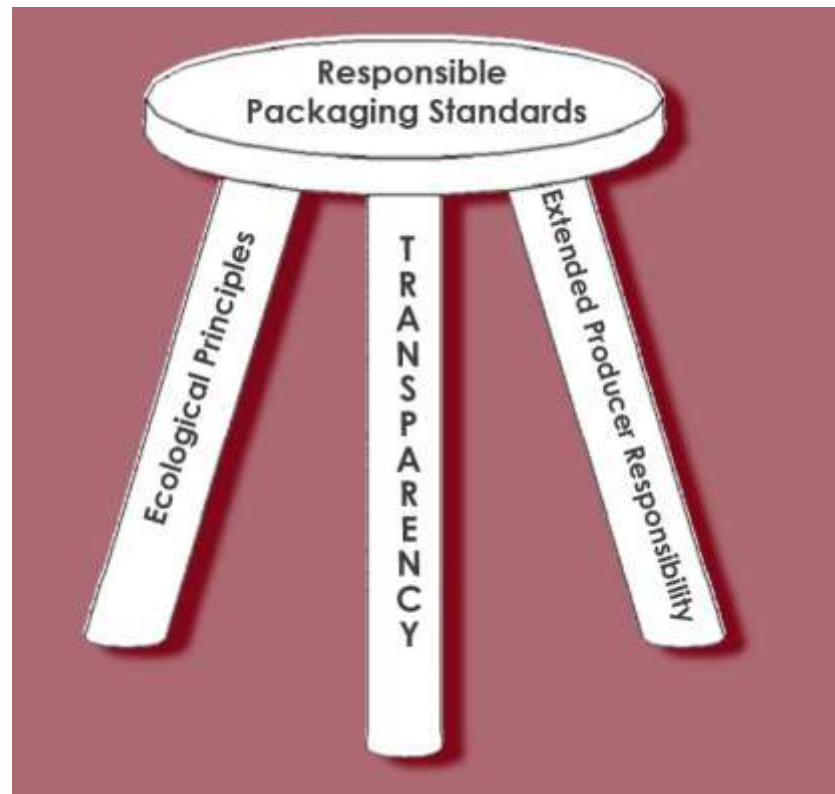
There are three legs to the dialogue concerning Packaging Standards:

1. **Transparency** of content and process in determining these standards, and which materials and inputs are preferred.
2. **Extended Producer Responsibility (EPR)** -- a strategy designed to promote the integration of environmental costs associated with products throughout their life cycles into the market price of the products
3. **Ecological Principles** drive the definition of “what is”. e.g. either recyclable as a **technical nutrient**, or compostable as a **biological nutrient**.

Extended Producer Responsibility

(EPR) is the extension of the responsibility of producers for the environmental impacts of their products and packaging to the entire product life cycle -- and especially for their take-back, recycling, and disposal. EPR is based on the 'polluter pays' principle.

Responsible Packaging Standards' Three Legs



Transparency: Sharing Details of Our Progress

- Many companies today are making green claims. Among these are companies that are "greenwashing": making claims about their environmental record that aren't supported by their actions. In this type of environment, it is increasingly important to be open and honest about our progress toward sustainability.

The **precautionary principle**

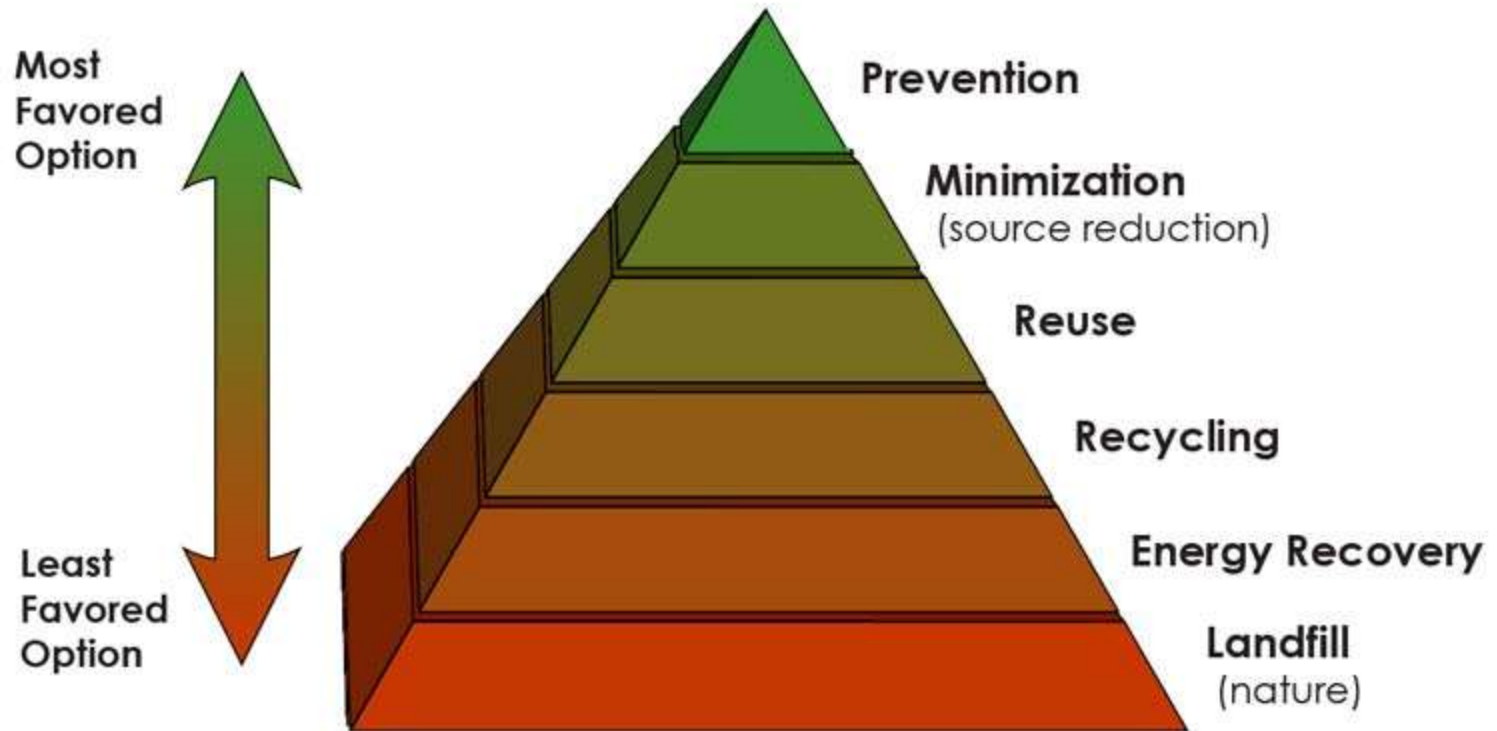
- states that if the potential consequences of an action are severe or irreversible, in the absence of full scientific certainty the burden of proof falls on those who would advocate taking the action.

Sustainability:

2 simple rules to follow

- Live off of current solar income
- The cyclic principle: waste = food for something else; there is no bioaccumulation of persistent human-made molecules

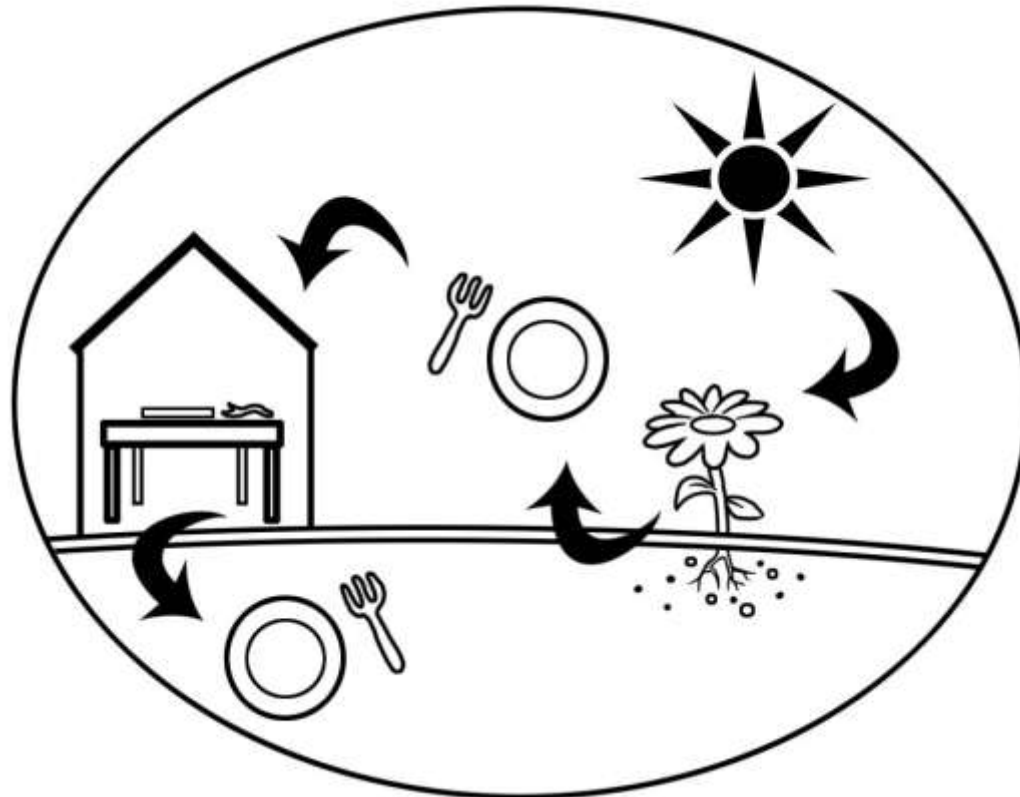
Waste Hierarchy Protocol



Waste Hierarchy Protocol

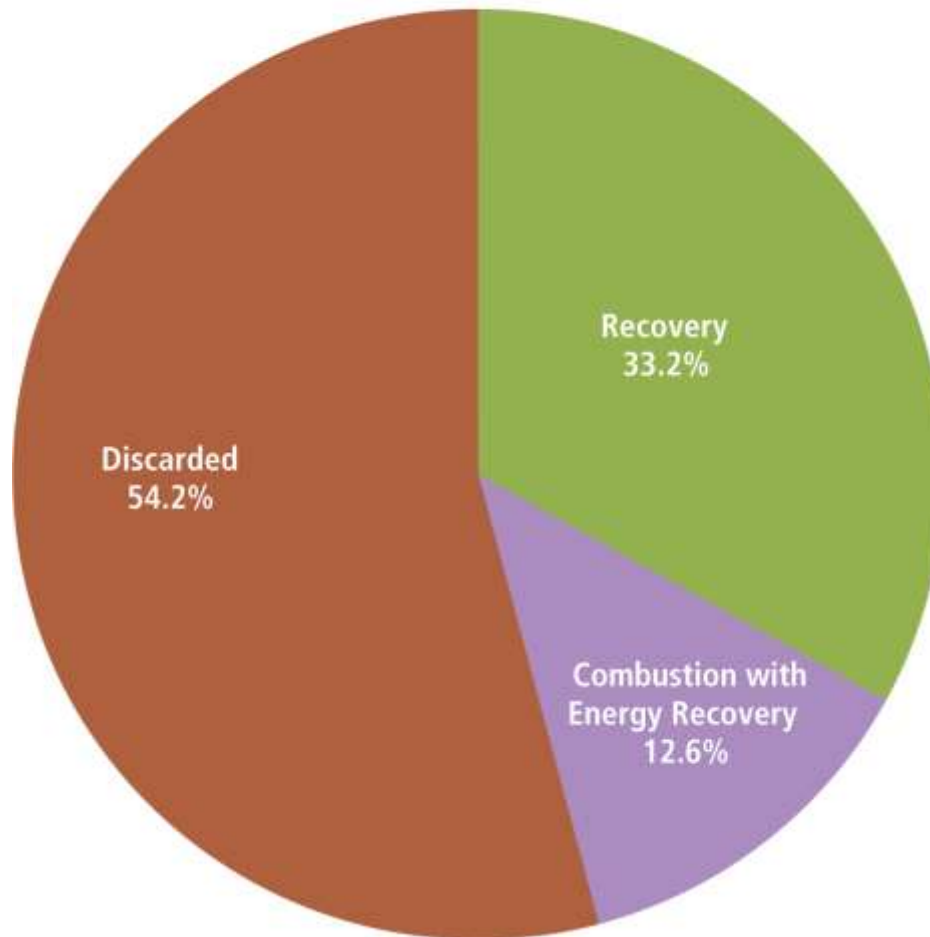
“Zero Waste” from packaging is the goal.

In nature there is no waste, what appears as ‘waste’ is actually ‘food’ for another organism.



Solid Waste Management

Figure 4. Management of MSW in the United States, 2008



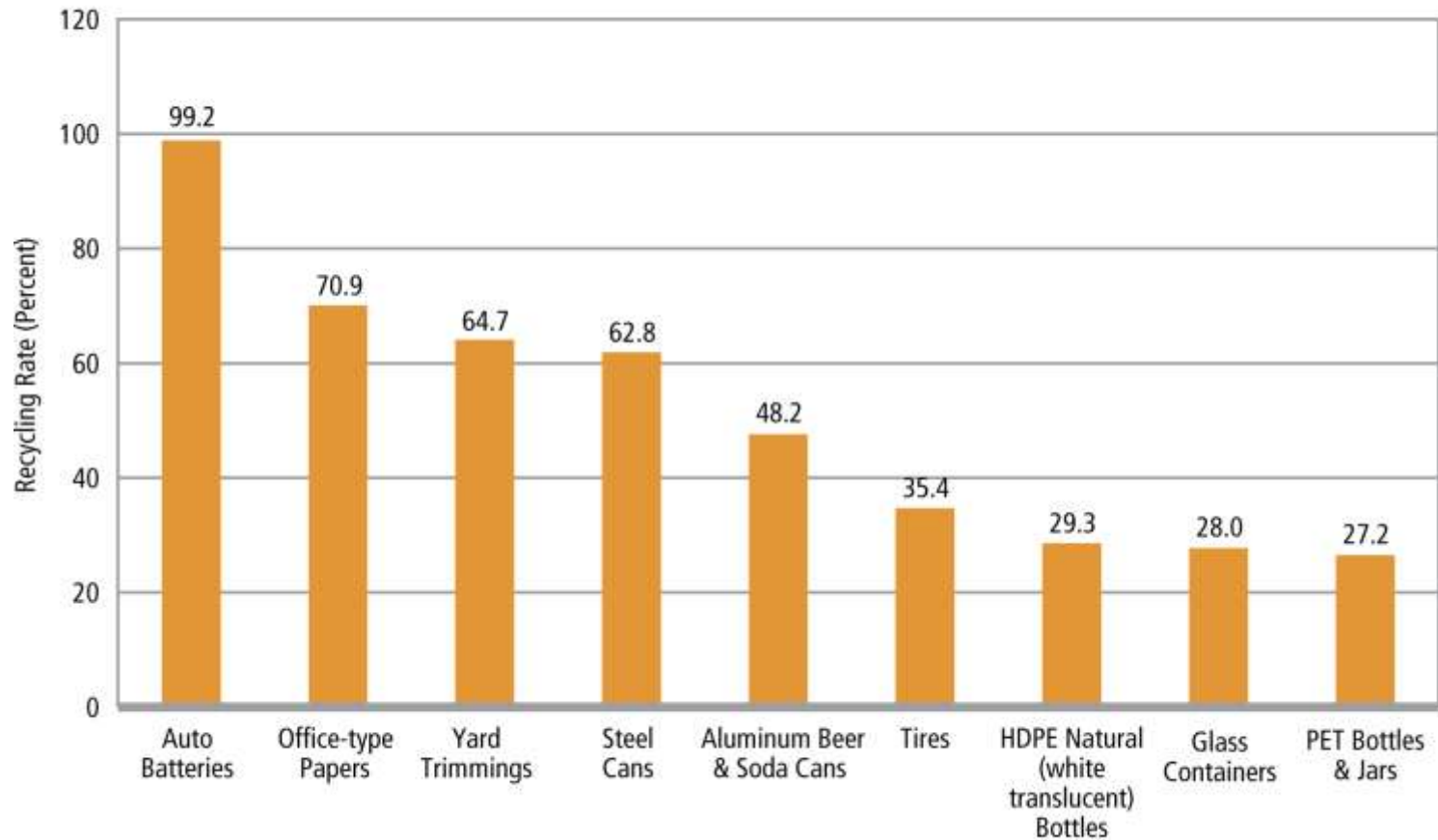
Recycling and Composting as minimum goals.

An aim of these packaging guidelines is to make landfilling, disposal into nature (whether by accident or not), and incineration, obsolete, by placing recycling and/or composting as the minimum goals.



2008 USA Recycling Rates

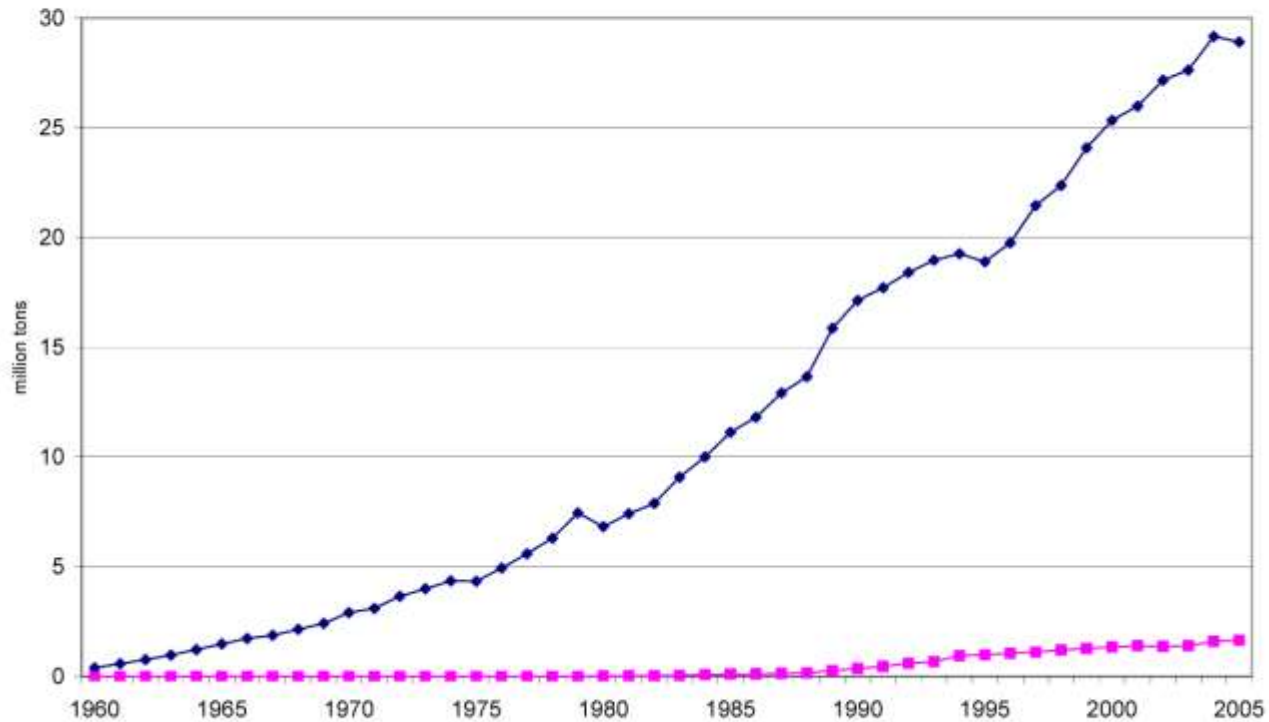
Figure 3. Recycling Rates of Selected Products, 2008*



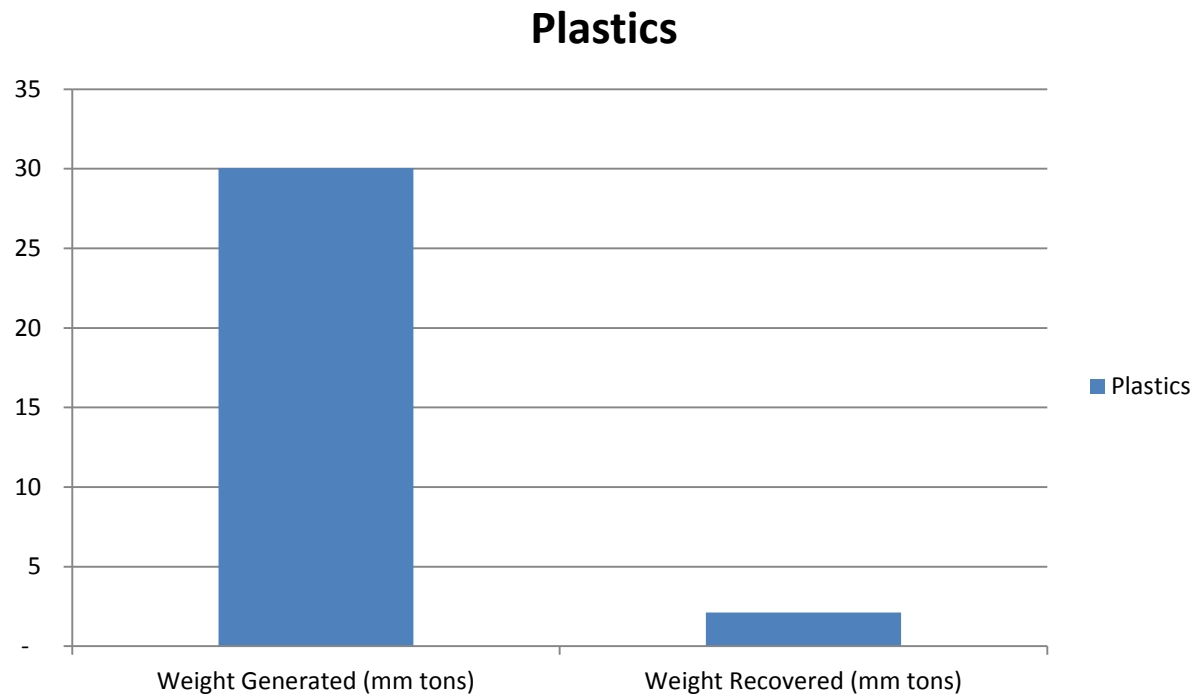
*Does not include combustion (with energy recovery).

Plastics generated and recovered

Figure 9. Plastics generation and recovery, 1960 to 2005

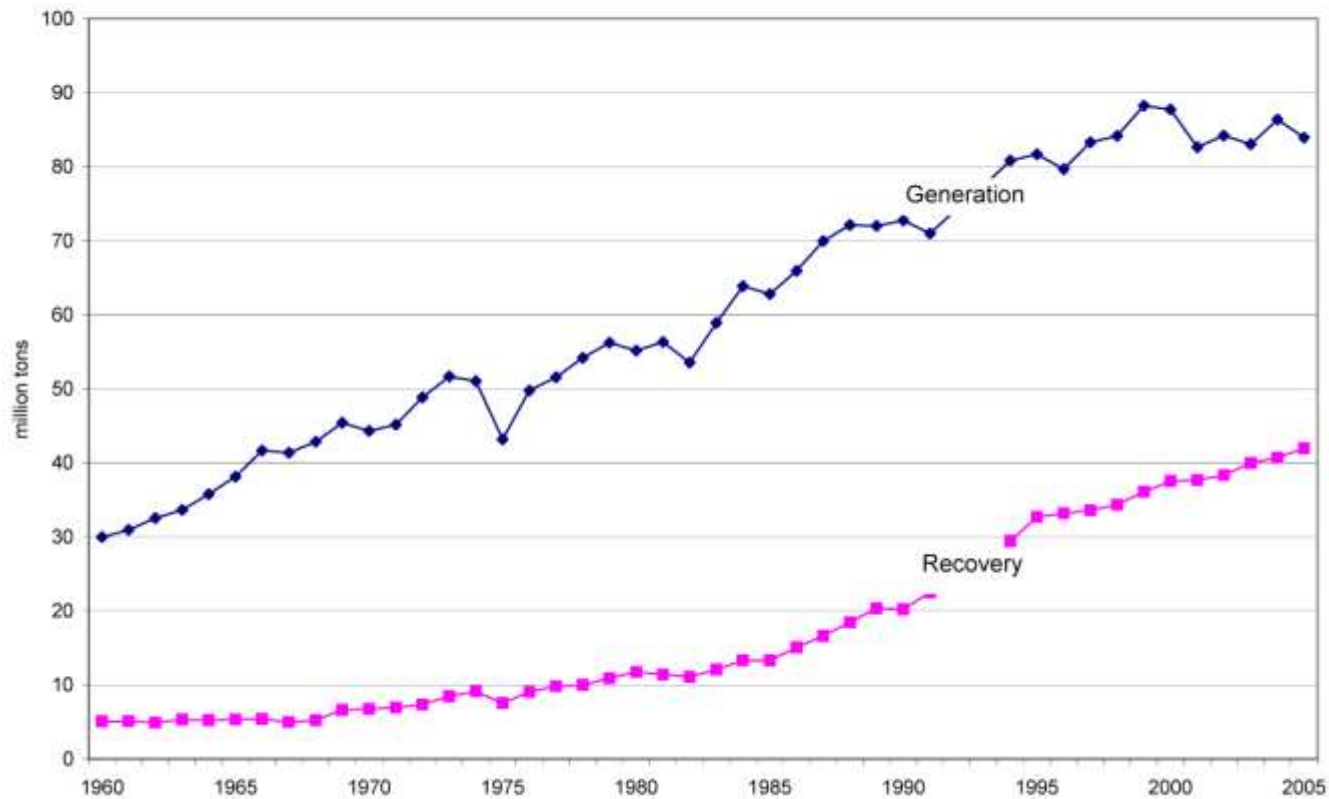


Plastics recovered 2008.



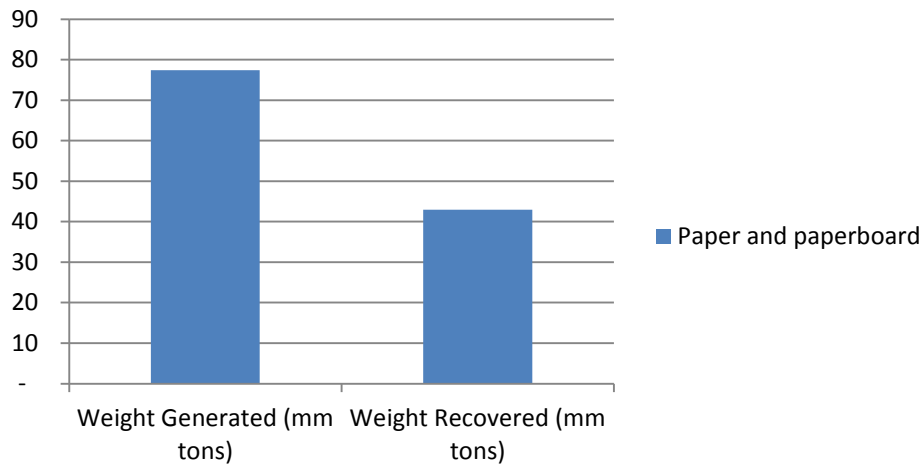
Paper recovery grows at same rate as trashed paper.

Figure 3. Paper and paperboard generation and recovery, 1960 to 2005



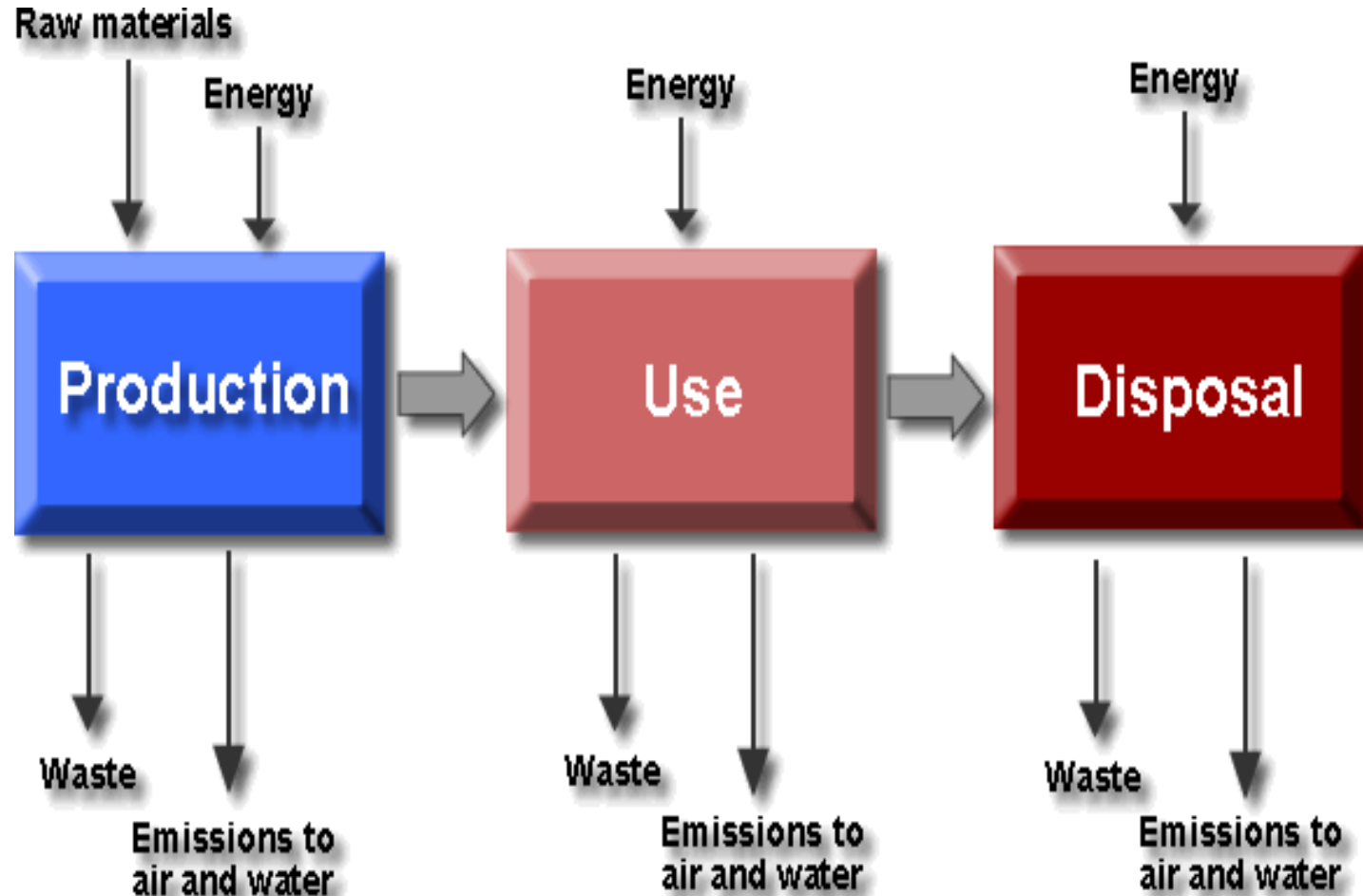
Paper recovered 2008.

Paper and paperboard



Take – Make – Waste

(linear throughput, reductionistic)



Will we make this paradigm shift?

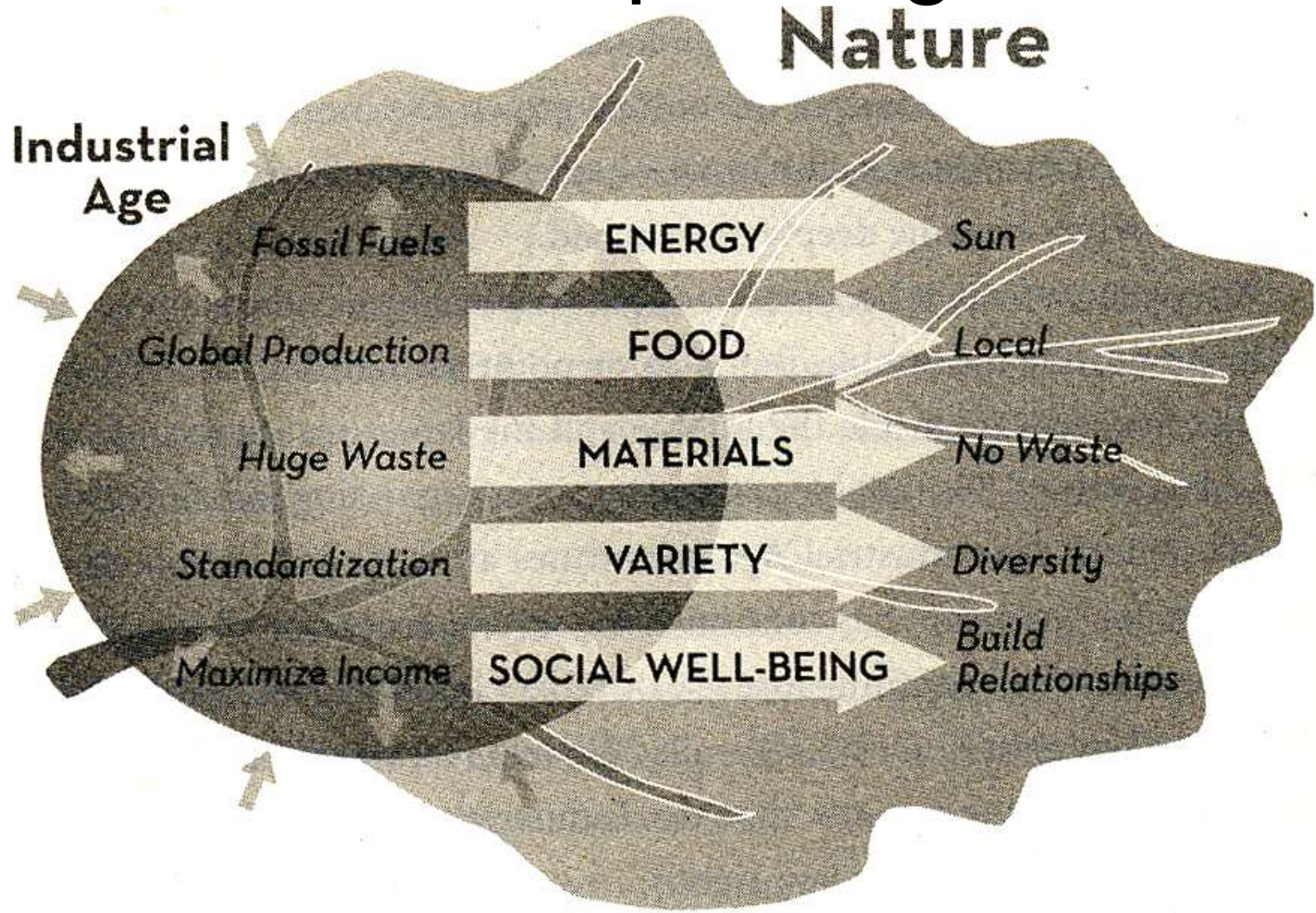
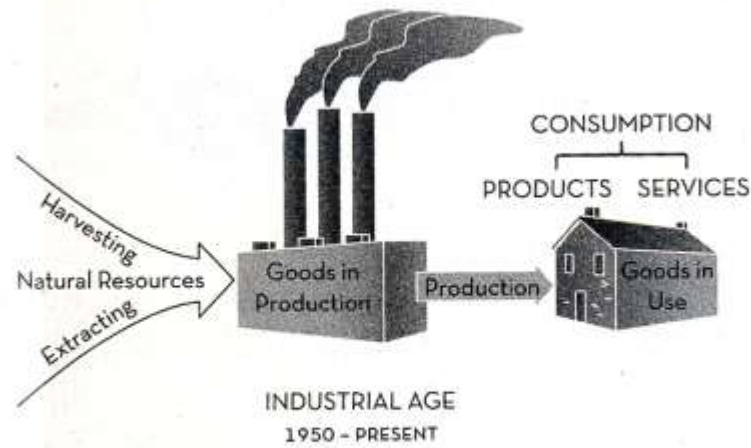
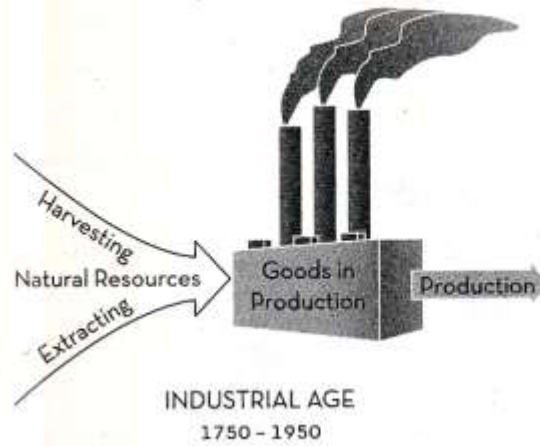
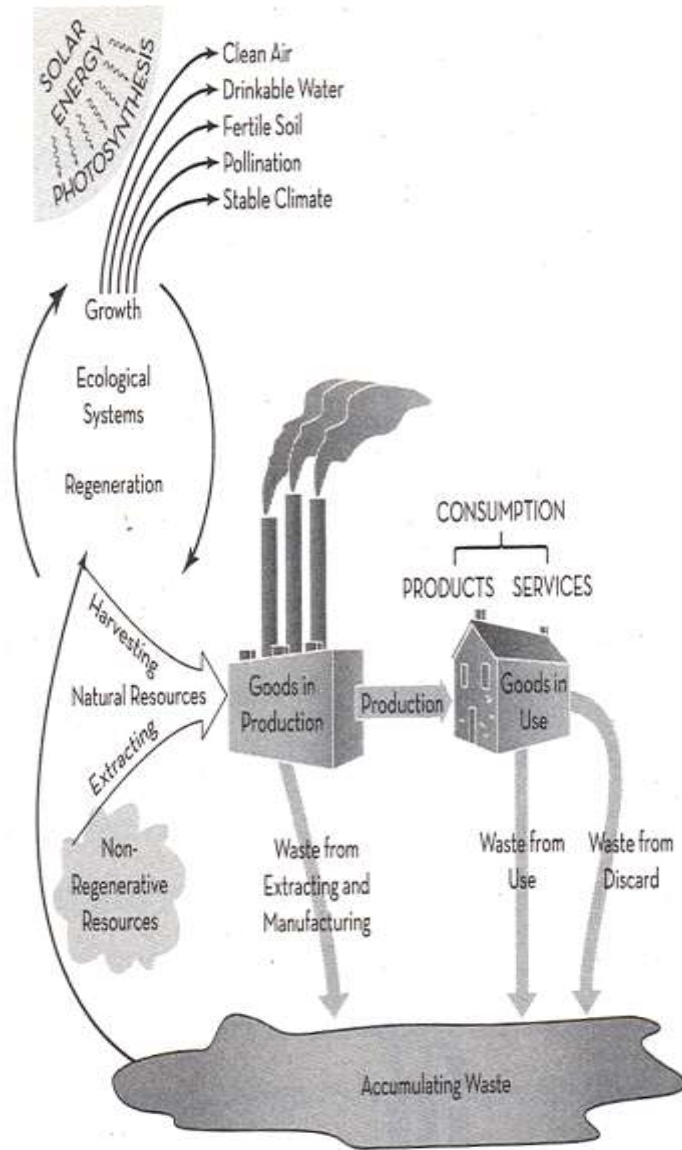
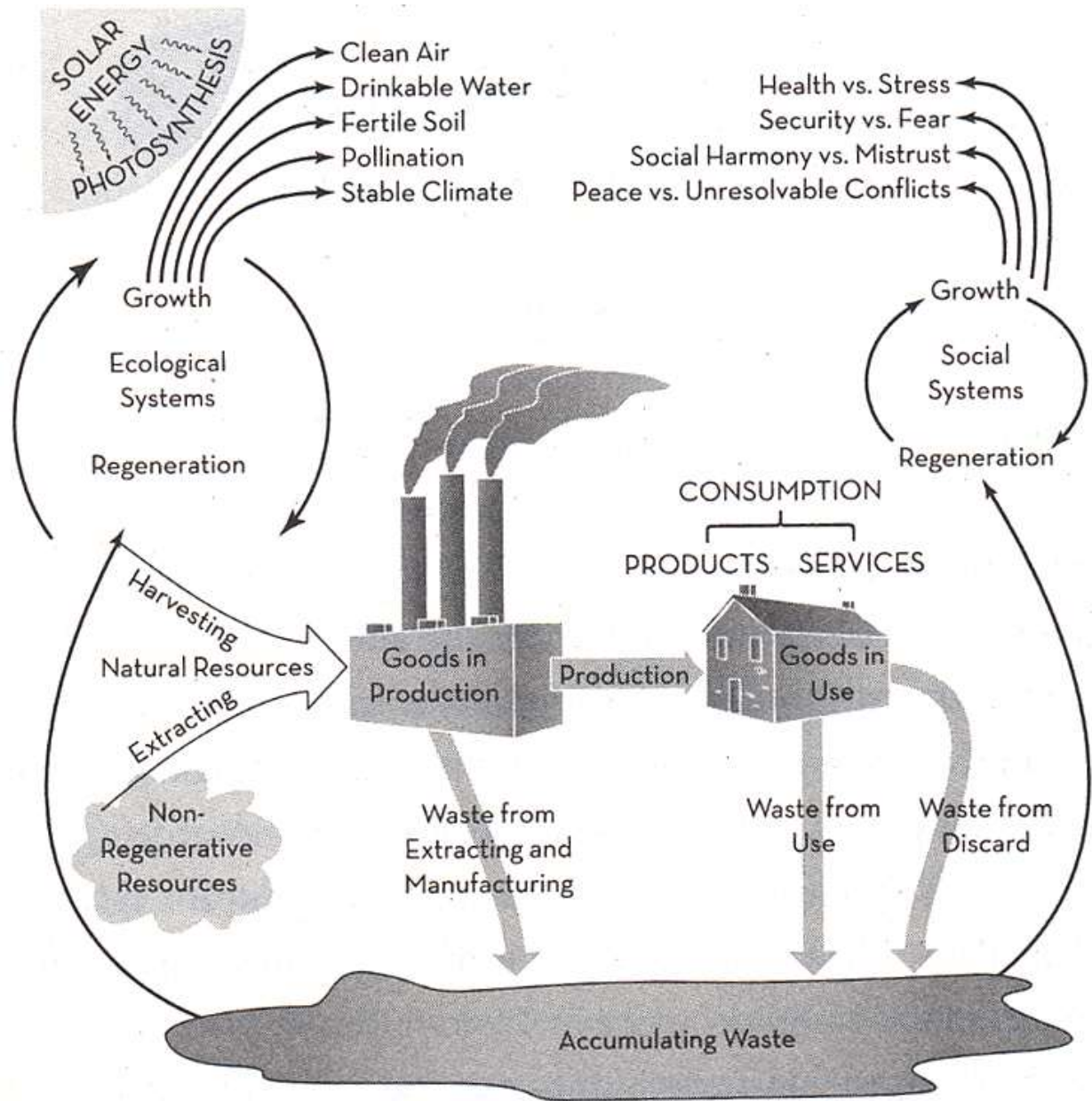


FIGURE 3.1



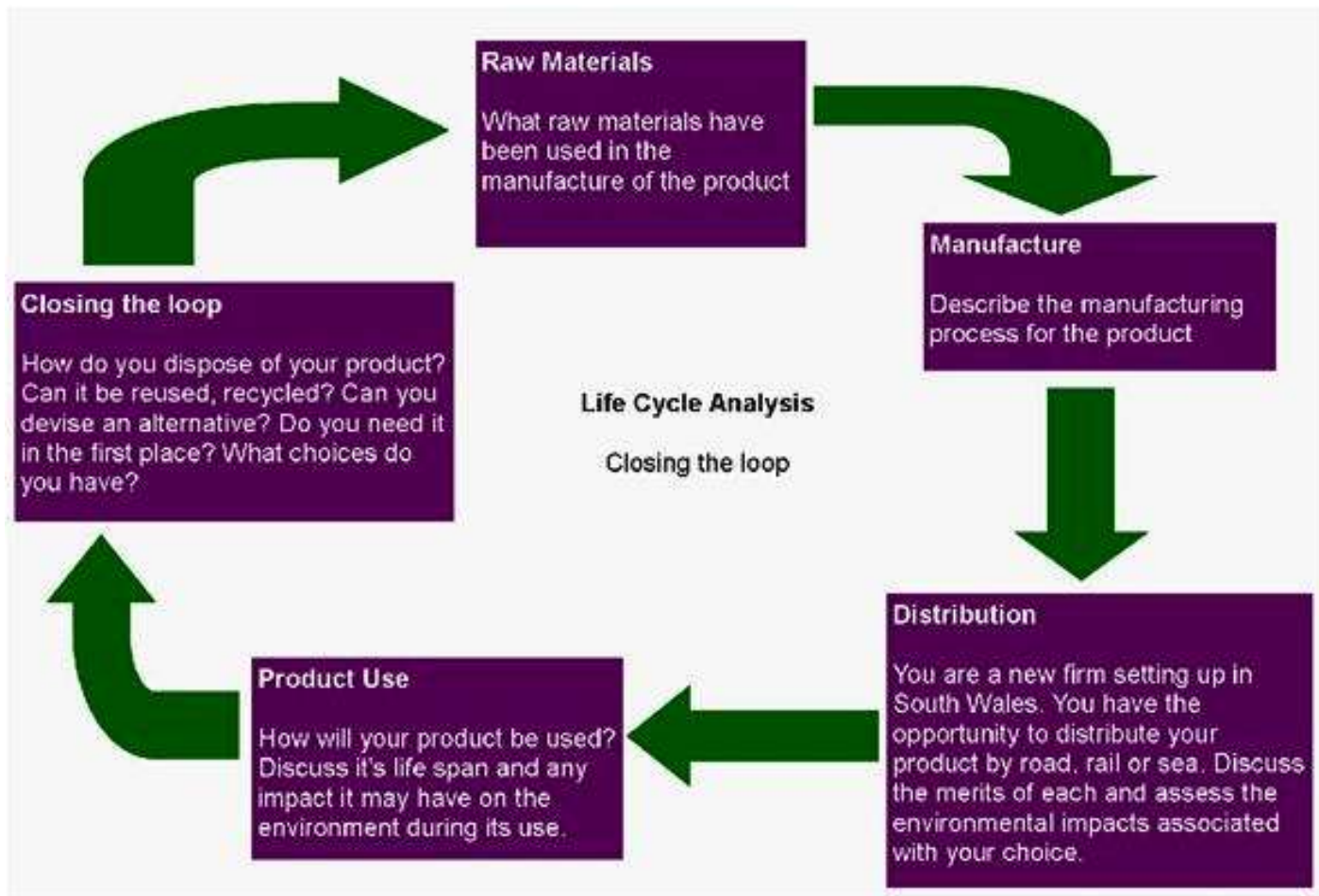
FIGURES 2.2 a, b





FIGURES 2.2 c, d

Asking Cyclic Principle questions.



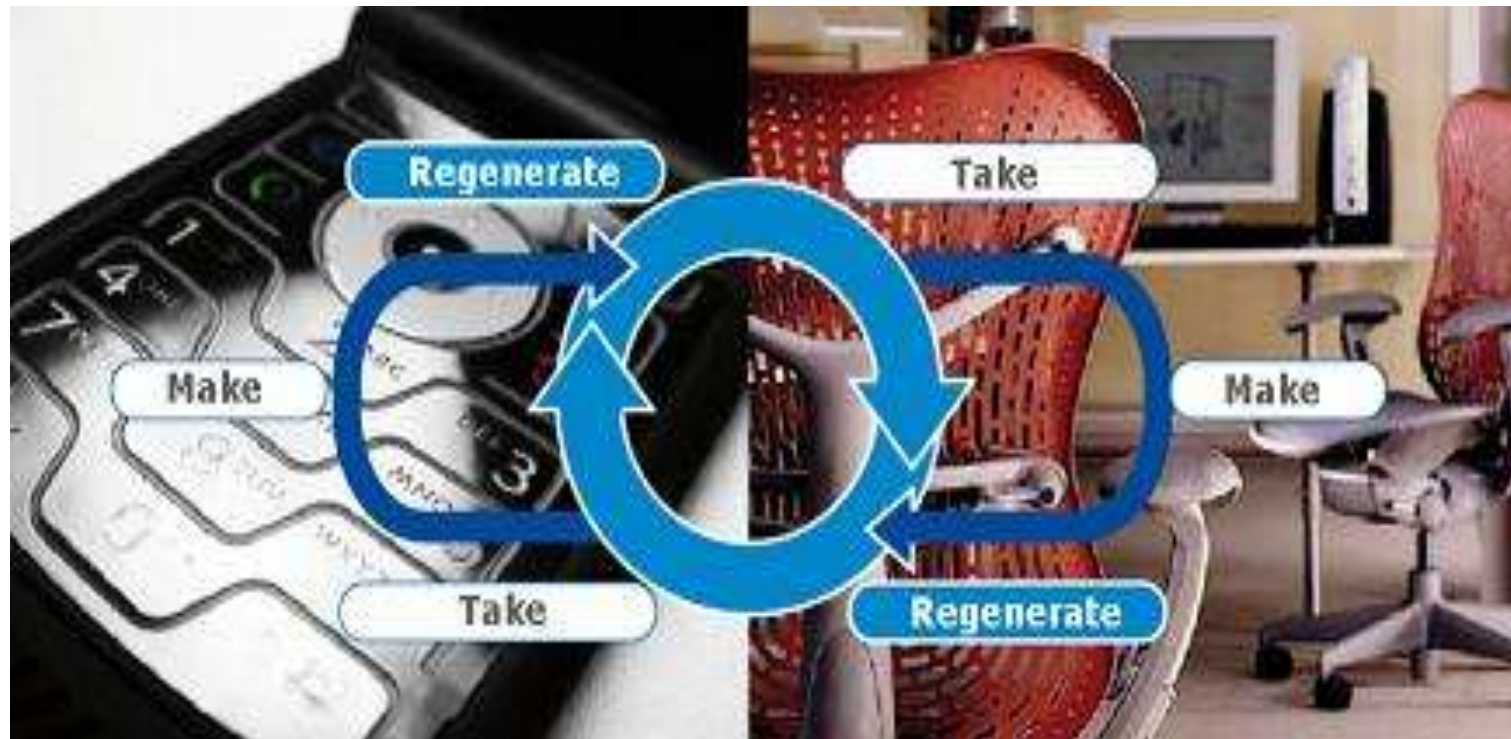
Nutrient Cycles: Key Ecological Principle

Cradle to Cradle Design distinguishes between two types of products depending on their behavior during use:

- Products of Consumption
- Products of Service

Products of Service are Technical Nutrients in the Technical Cycle.

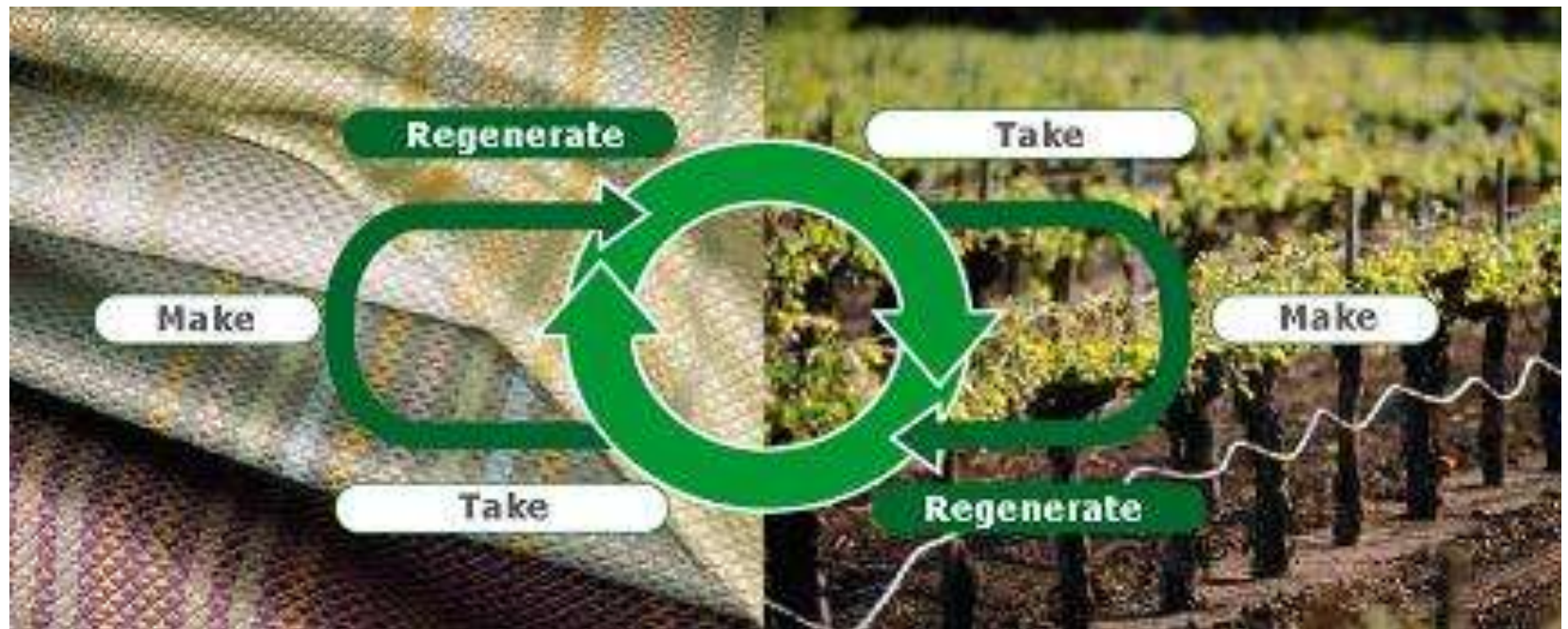
e.g. Aluminum, glass, plastics



Technical Nutrient Simplicity

- **co-her-ence** (k -hîr ns, -h r -)
- *n.*
- **1.** The quality or state of cohering, especially a logical, orderly, and aesthetically consistent relationship of parts.

Products of Consumption are
Biological Nutrients in the Biological
Cycle:
Celebrate biological diversity.
The Regenerative Economy
based on solar income.



US Curbside Compost Collection

From Michigan and Minnesota to Washington and California, **household organics** are being separated and sent to specially-designed composting sites.

"MUNICIPAL solid waste composting projects are being launched based on residential separation of the compostable stream from recyclables and trash - quite widespread in Europe and increasingly in Canada. One trend - typically in cities and suburban communities - is to add source separated residential organics to existing yard trimmings collection programs."

Source:

BioCycle December 2005, Vol. 46, No. 12,
p. 20
Nora Goldstein

US Curbside Collection Case Study: San Francisco 77% Diversion

The city and county of San Francisco's Fantastic 3 program is the largest and longest running residential **source separated** organics/food scraps composting project in the United States.



Aluminum: Biannual Report of Beverage Container Sales, Returns, Redemption and Recycling Rates (Deposit state example)

Date Ranges	Redemption	Recycling	Sales*	Recycled	Refillable	Postfilled
Jan - June 2010	95	95	4,139,530,221	3,927,101,177	0	105,028,761
July - Dec 2009	91	91	4,868,254,684	4,412,768,853	0	101,199,661
Jan - June 2009	91	91	4,332,122,180	3,941,500,646	0	44,303,845
July - Dec 2008	83	83	5,099,594,298	4,212,294,113	0	20,857,340

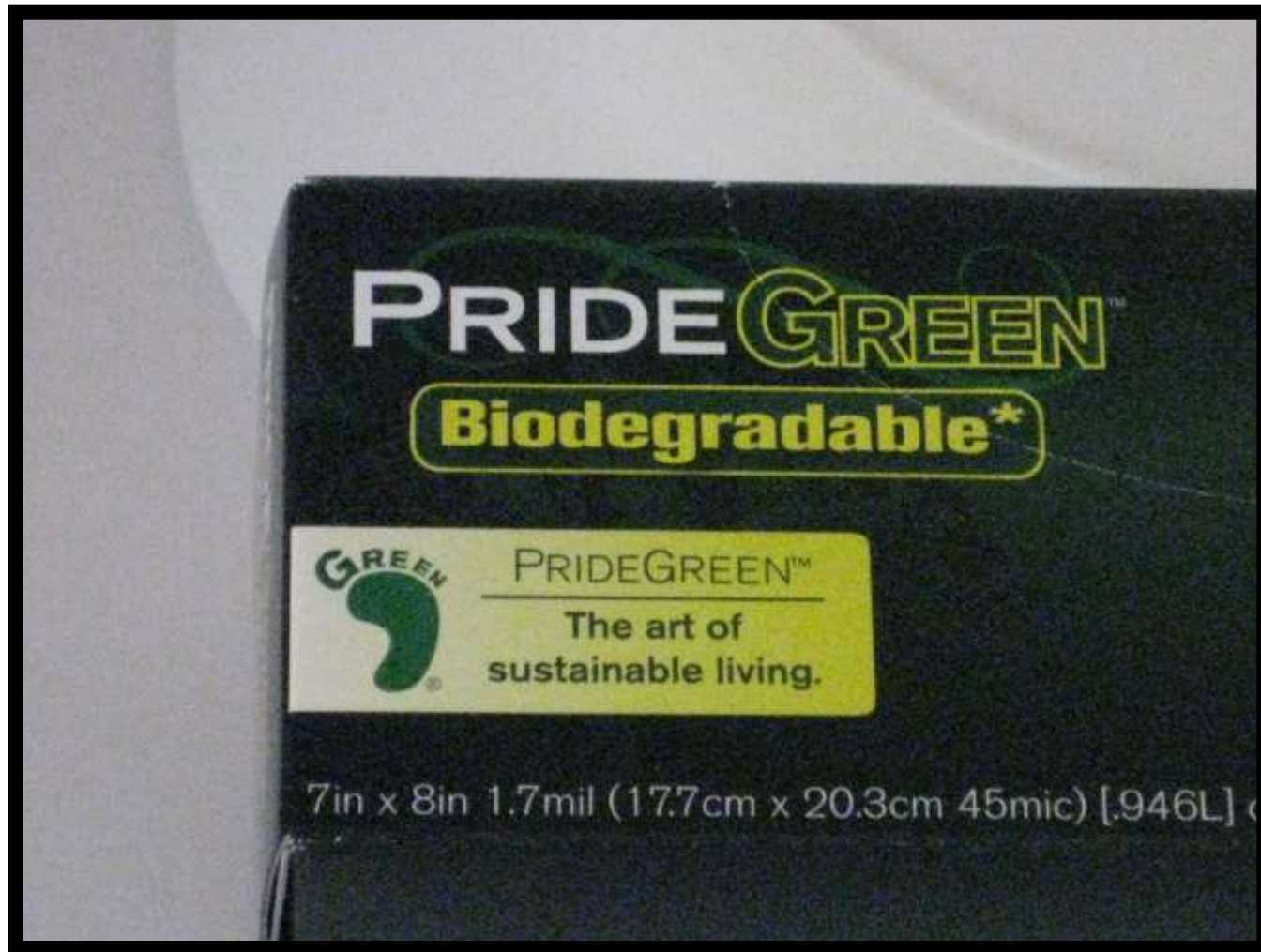
From:



FTC Green Guides

- **Green is Good; Greenwashing is Bad. Get to know the FTC Green Guides**
- **Compostable. A compostable product must break down into usable compost in a safe and timely manner (*i.e.*, about the same time as the materials with which it is composted). If composting is limited to municipal composting facilities, or if municipal composting is not available to a substantial majority (60%) of communities where the product is sold, that must be disclosed.**

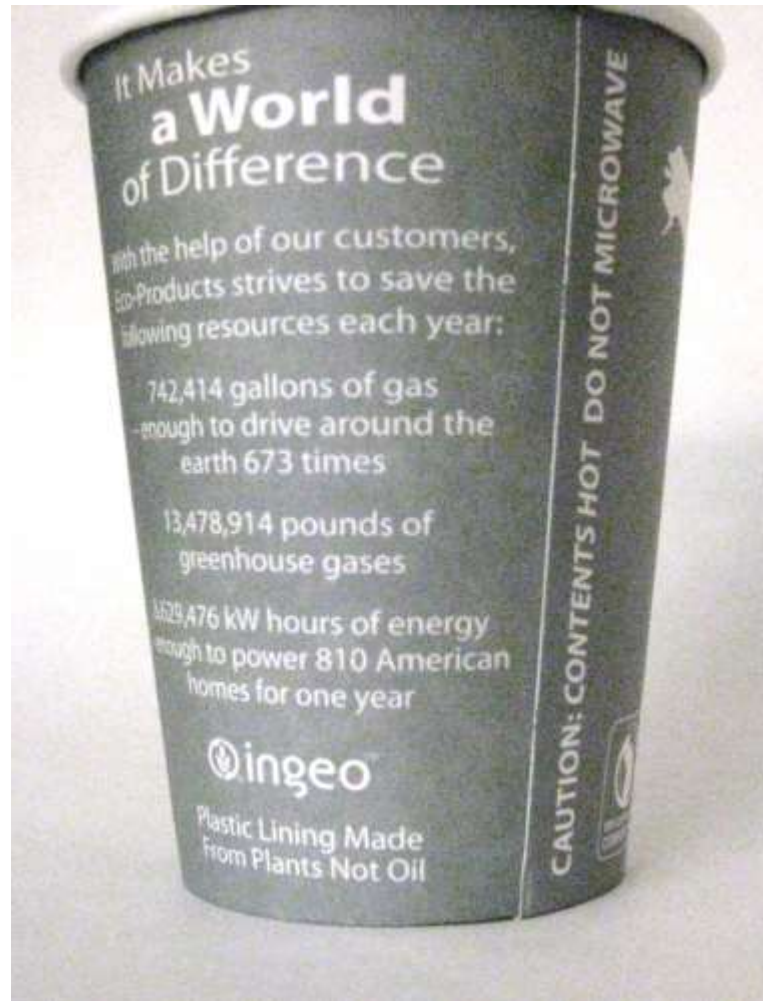
Biodegradable ?



Who's the certifier? (Why not everyone?) “Certified Compostable”

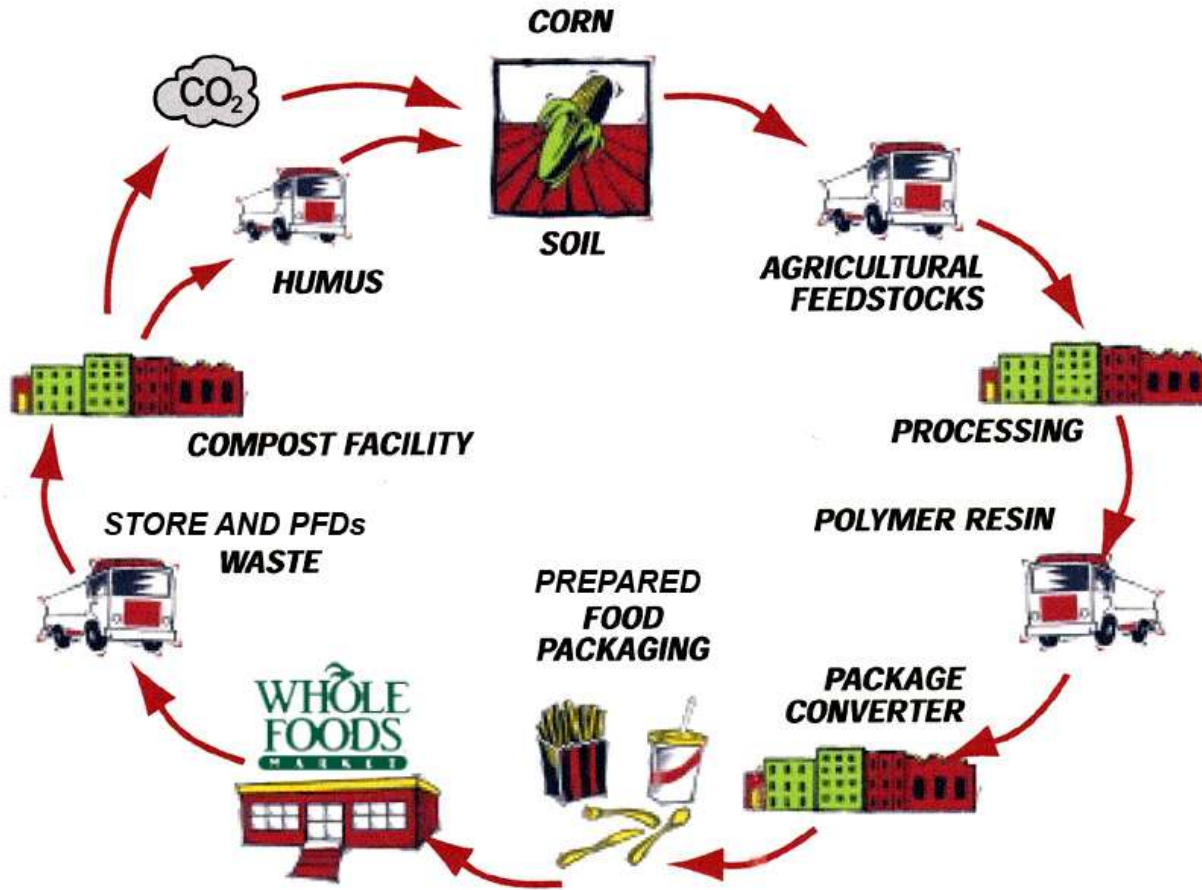


Plastics made from GMO plants; Plastics made from food.



This is the “Beyond Organic”
positioning.





The Green Cell Packaging Cycle
 This is an example of moving towards closed loop.

Is this OMRI listed?



Ask questions:

Every product, every material, can describe itself in two simple pictograms.

1. How it is made and from what it is made.
2. What is the life cycle? Is there any persistent waste?

What is the 'stuff's' Next Life?

- Recycle? Compost?
- Downcycle?
- Repurpose?

Imagine the Possibilities...

If...

- The national recycling rate of 30 percent saves the equivalent of more than **five billion gallons of gasoline**, reducing dependence on foreign oil by **114 million barrels**,

and...

- 77% of US MSW equals a differential of **7.8 billion gallons of gasoline**,

then...

- We could reduce dependence on foreign oil by ***another* 178 million barrels**.

Imagine the Possibilities...

If...

- According to the U.S. EPA, **recycling (including composting) diverted 83 million tons** of material away from landfills and incinerators in 2008.

and...

- That equals only 33% of US MSW, and we know 77% is possible,

then...

- **We can divert 109 million additional tons** of recycling from 2008 levels.

Imagine the Possibilities...

If...

- Incinerating 10,000 tons of waste creates one job; landfilling 10,000 tons of waste creates six jobs; **recycling 10,000 tons of waste creates 36 jobs.**



and...

- 77% of US MSW equals a differential of 109 million additional tons of recycling from 2008 levels,

then...

- We could create **327,000** more jobs in the US if we were recycling to proven capacities!

Appendix

We all have the choice.



US Curbside Collection Case Study: San Francisco

August 30, 2010

San Francisco Achieves 77% Landfill Diversion Rate, the Highest of Any U.S. City

Mayor Gavin Newsom today announced that San Francisco achieved 77 percent landfill diversion rates, **surpassing the goal of 75 percent landfill diversion by 2010** and setting national recycling rate records, the highest of any city in the United States. New statistics show that the City is **up from 72 percent landfill diversion from the year before.**

Source:

http://www5.sfgov.org/sf_news/recycling/

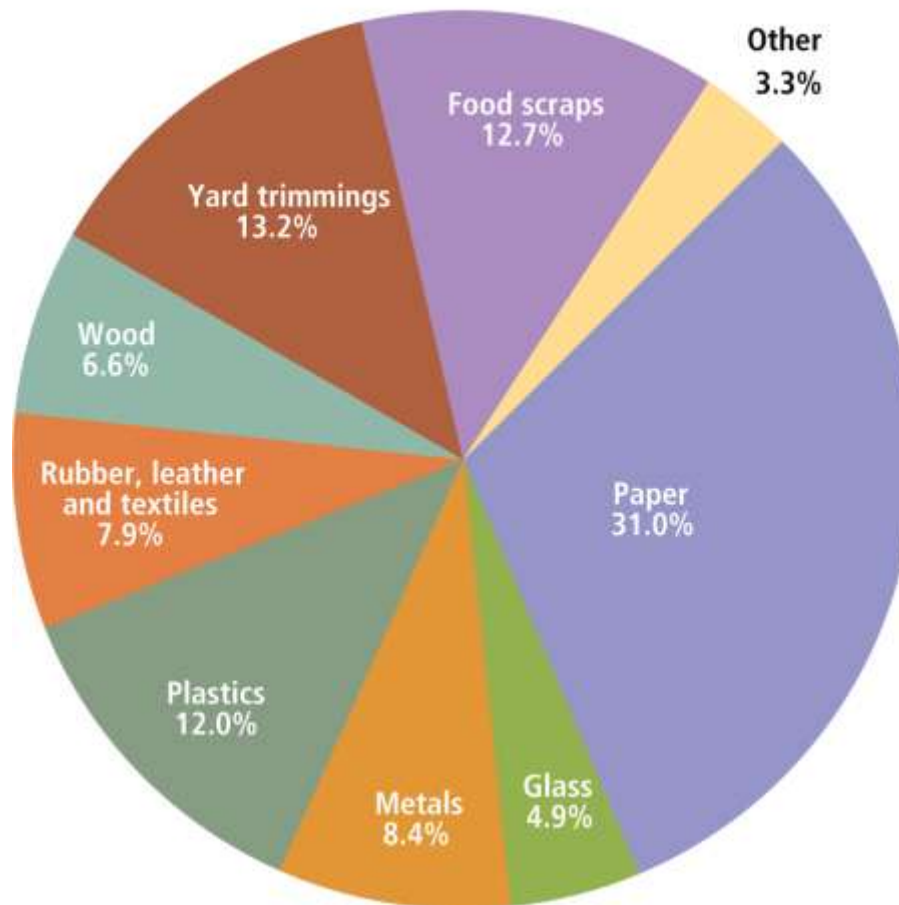
So what is Happening Nationally?

US Recycling and Composting Collection Programs (As of 2009)

- Approximately 8,660 curbside recycling programs exist nationwide, **down from 8,875 in 2002.**
- About 3,510 community composting programs are operational, an increase from 3,227 in 2002.

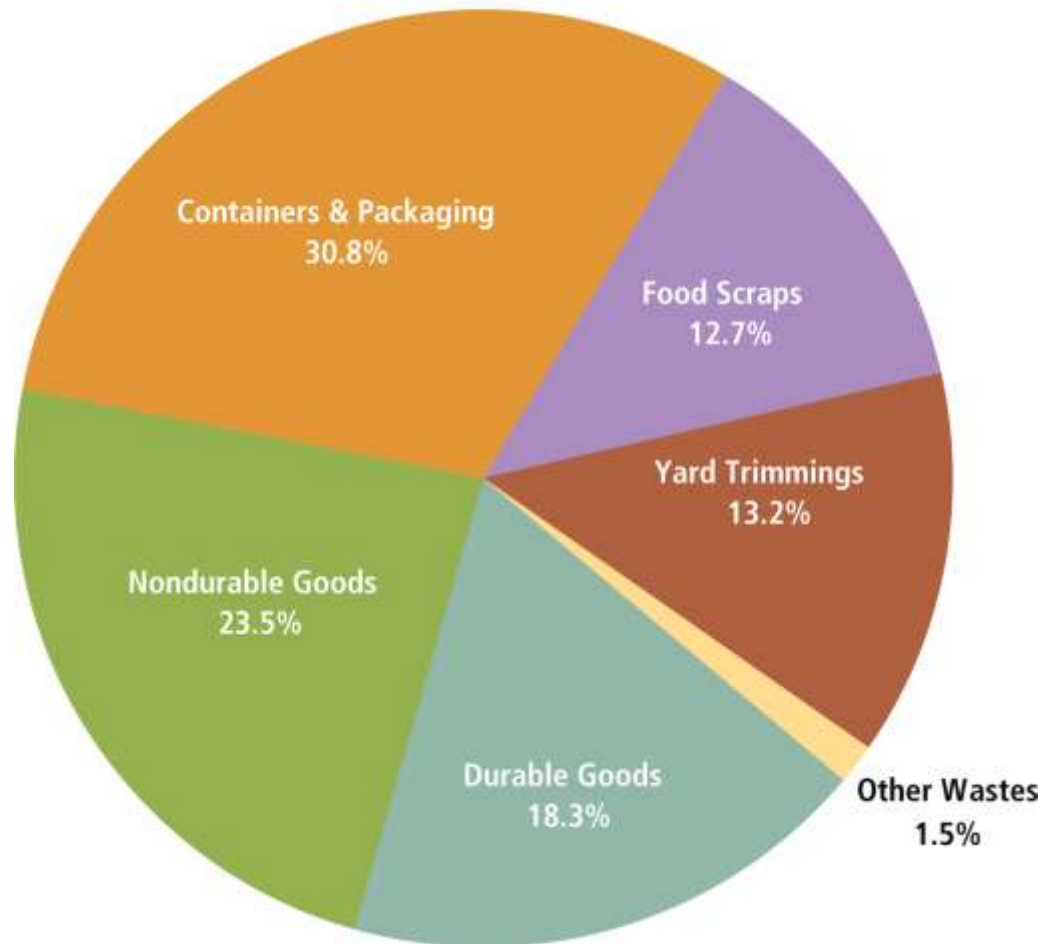
SW Generation by Material Type

Figure 5. Total MSW Generation (by material), 2008
250 Million Tons (before recycling)



SW Generation by Category

Figure 6. Total MSW Generation (by category), 2008
250 million tons (before recycling)



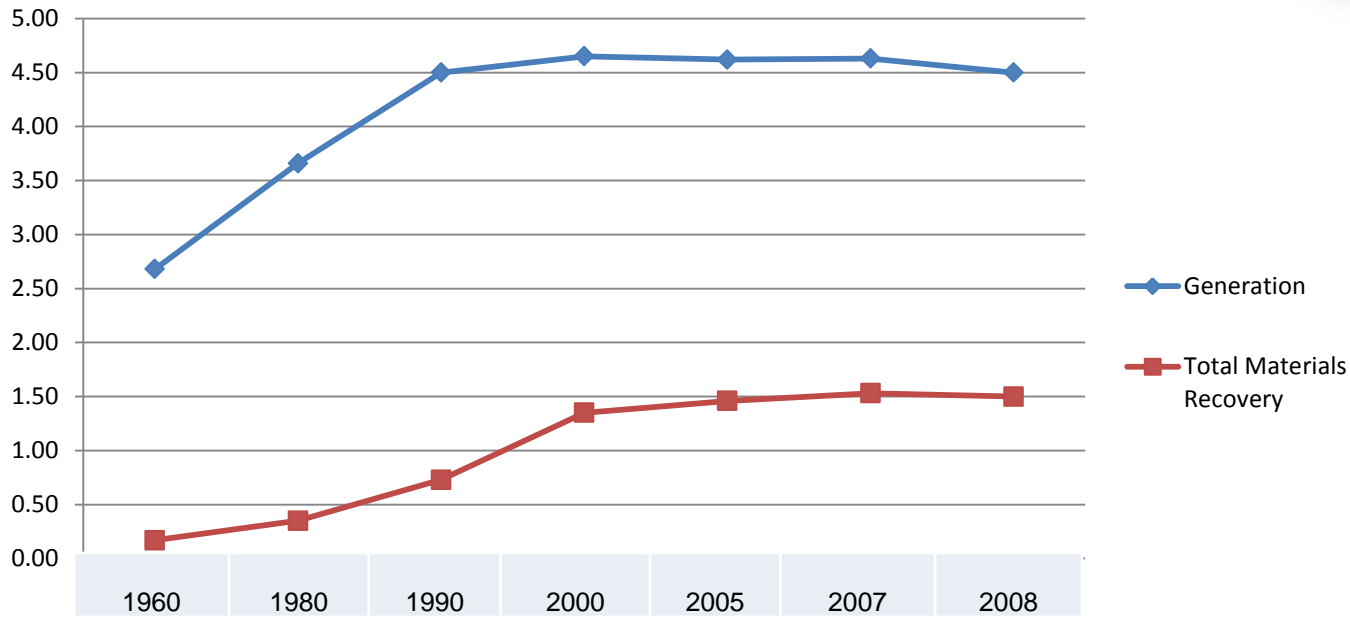
US Municipal Solid Waste (MSW) Generation & Recovery

Recovery and Discards of MSW, 1960 to 2008 (in pounds per person per day)

Activity	1960	1980	1990	2000	2005	2007	2008
Generation	2.68	3.66	4.5	4.65	4.62	4.63	4.50
Recovery for recycling	0.17	0.35	0.64	1.03	1.08	1.14	1.10
Recovery for composting*	Negligible	Negligible	0.09	0.32	0.38	0.39	0.40
Total Materials Recovery	0.17	0.35	0.73	1.35	1.46	1.53	1.50
Combustion with energy recovery	0.00	0.07	0.65	0.66	0.58	0.58	0.57
Discards to landfill, other disposal	2.51	3.24	3.12	2.64	2.58	2.52	2.43
Population (millions)	179.979	227.255	249.907	281.422	296.410	301.621	304.060

US Recovery vs. Generation

1960 to 2008



US Recovery Percentage

6%

10%

16%

29%

32%

33%

33%

San Francisco Recovery Percentage

2009

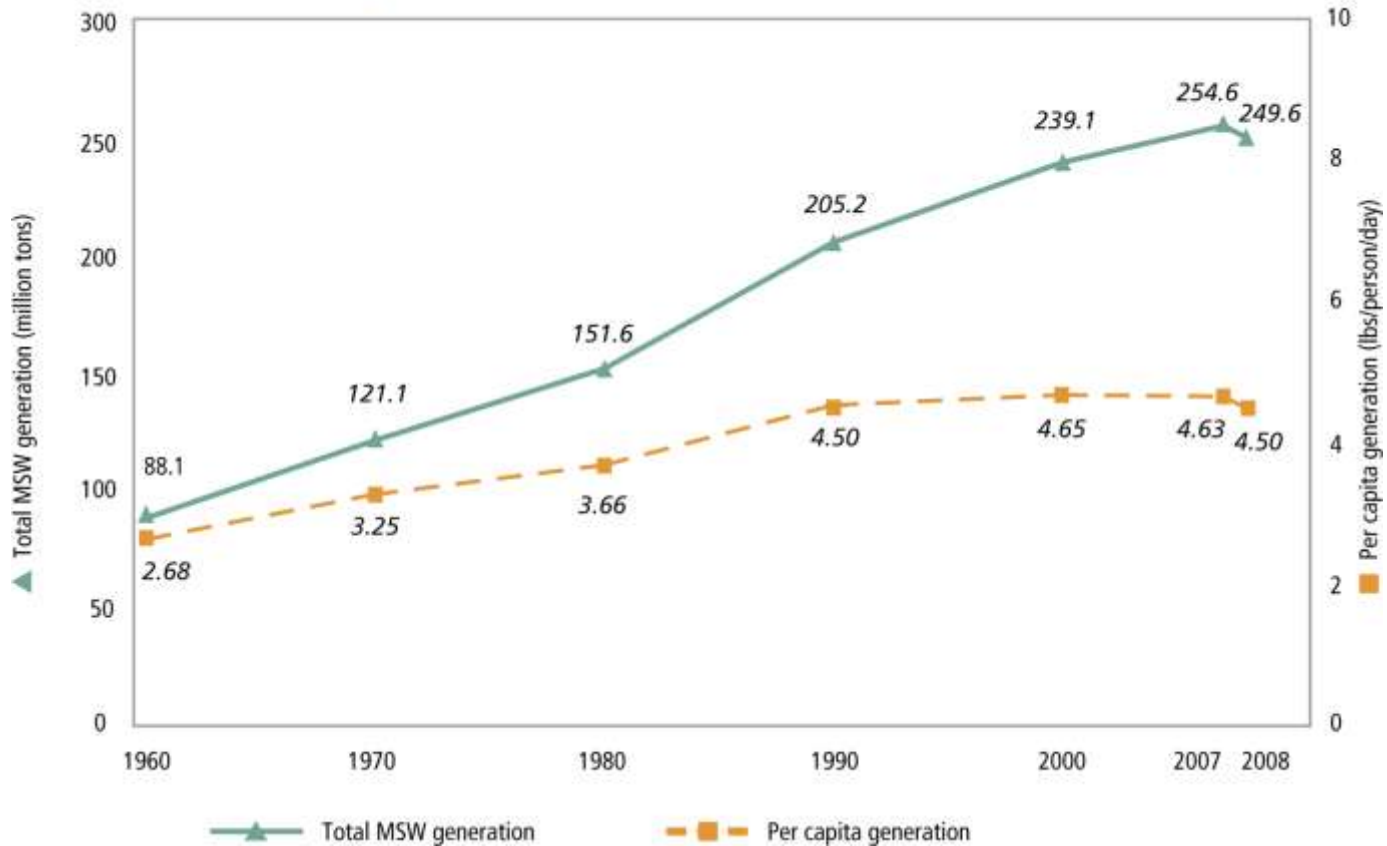
2010

72%

77%

US Municipal Solid Waste Generation

Figure 1. MSW Generation Rates, 1960 to 2008

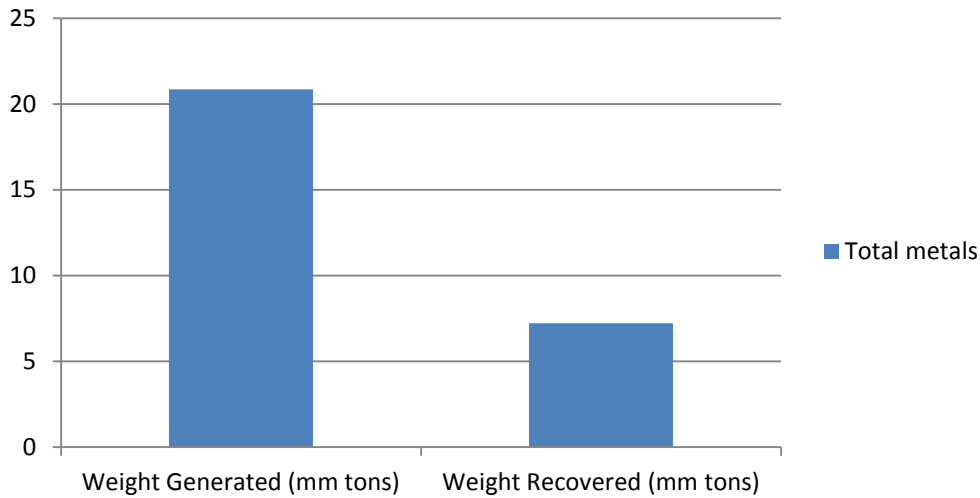


Source: EPA Statistics compiled November 2009

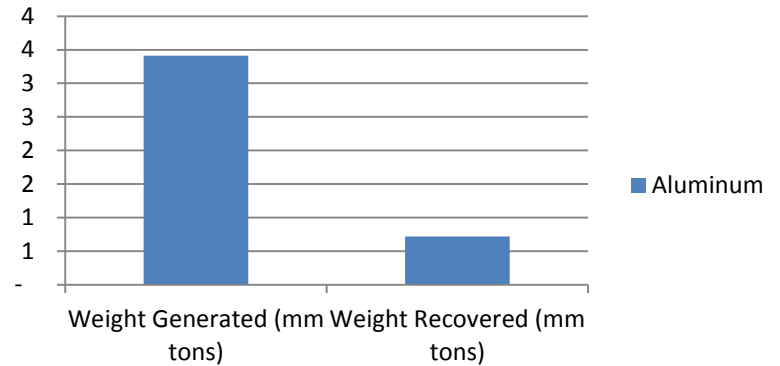
Retrieved from: <http://www.epa.gov/osw/nonhaz/municipal/pubs/msw2008rpt.pdf>

Metals recovered 2008.

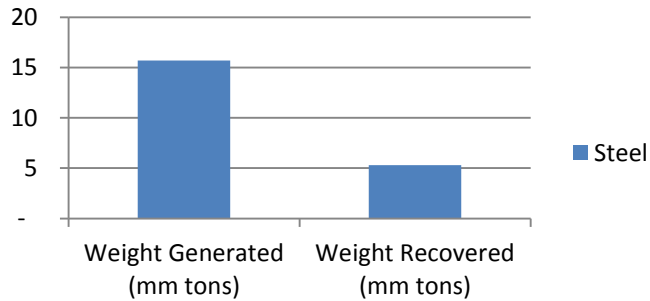
Total metals



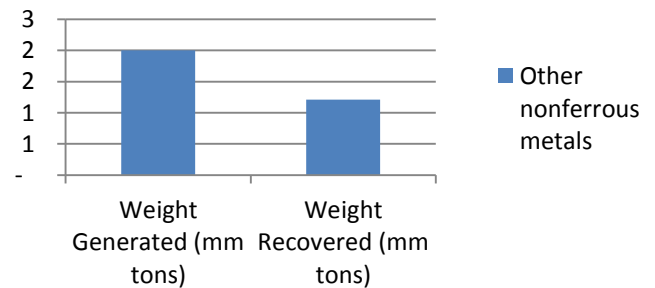
Aluminum



Steel

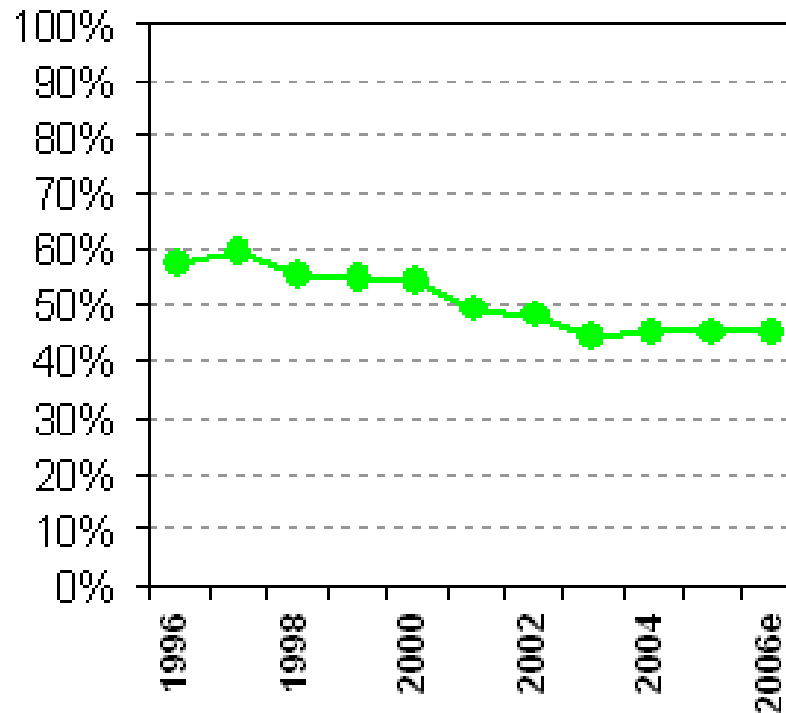


Other nonferrous metals



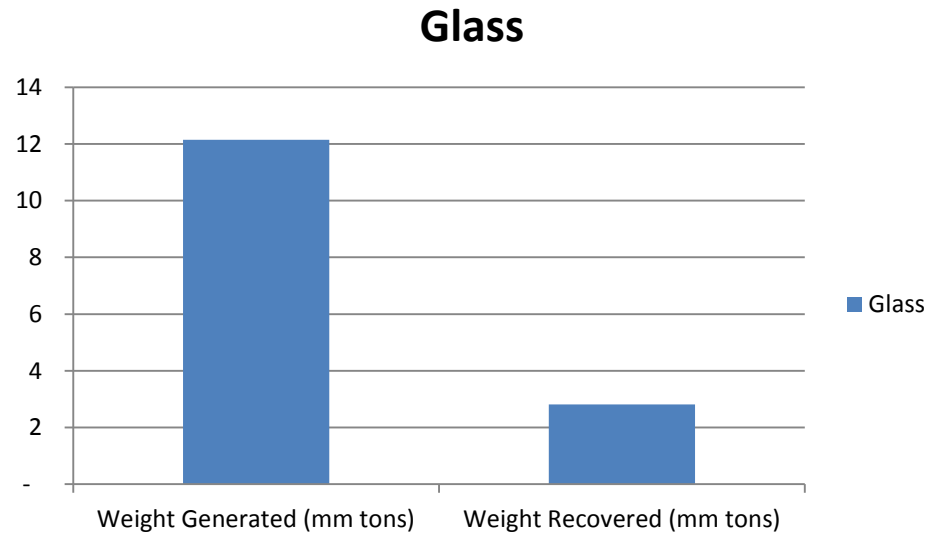
Nationally 1997 was peak year.

Aluminum Can Recycling Rates,
1996-2006e

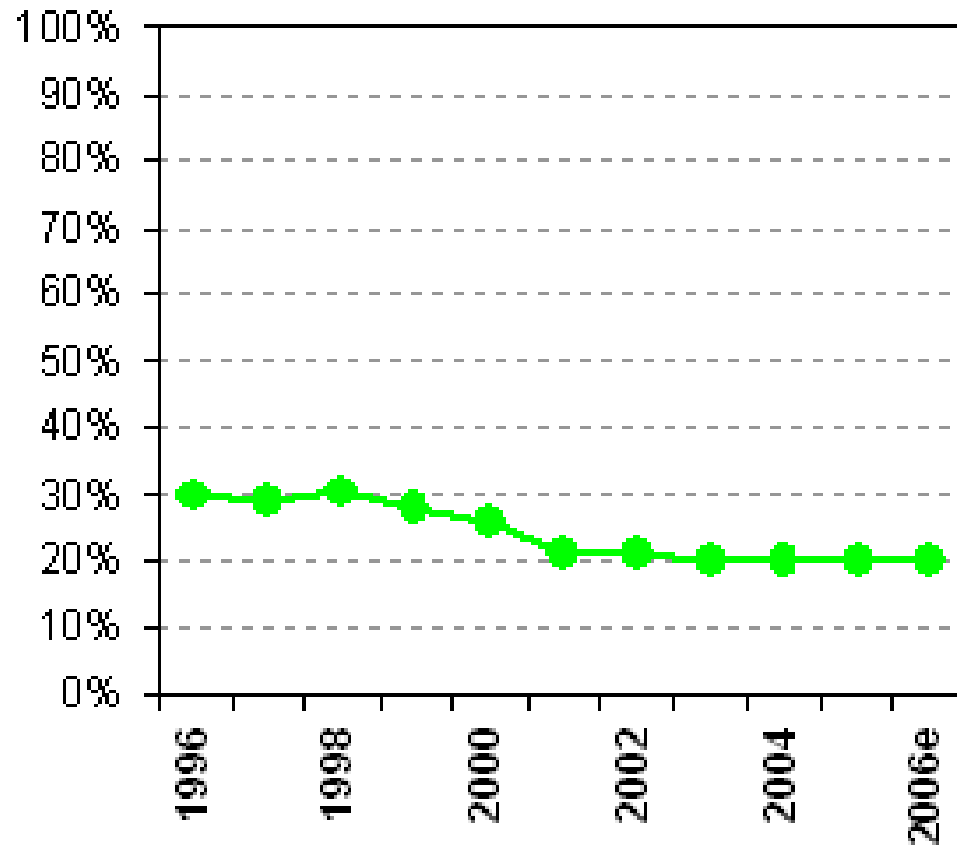


© Container Recycling Institute, 2006

Glass recovered 2008.



Glass Beverage Bottle Recycling Rates, (%) 1996-2006e



© Container Recycling Institute, 2006

Glass: Biannual Report of Beverage Container Sales, Returns, Redemption and Recycling Rates (Deposit state example)

Date Ranges	Redemption	Recycling	Sales*	Recycled	Refillable	Postfilled
Jan - June 2010	101	90	1,365,423,094	1,225,430,897	300	208,325,167
July - Dec 2009	85	77	1,667,765,942	1,276,277,514	805	211,175,108
Jan - June 2009	96	85	1,463,364,328	1,243,043,696	892	229,286,263
July - Dec 2008	79	72	1,807,105,770	1,307,761,865	4,819	186,816,317

From:



#1 PET: Biannual Report of Beverage Container Sales, Returns, Redemption and Recycling Rates (Deposit state; note lower rate than glass or aluminum)

Date Ranges	Redemption	Recycling	Sales*	Recycled	Refillable	Postfilled
Jan - June 2010	74	74	3,548,291,149	2,622,342,927	0	83,418,271
July - Dec 2009	69	69	4,522,439,326	3,136,311,034	0	82,339,591
Jan - June 2009	78	78	3,658,715,637	2,869,448,621	0	76,065,937
July - Dec 2008	61	61	4,773,754,544	2,896,480,200	0	69,917,453

From:



US Curbside Recycling

2008- Curbside recycling now serves half of the U.S. population, providing the most convenient means for households to recycle a variety of materials.

While all curbside programs differ, the most commonly included materials are “The Big Five:”

Aluminum

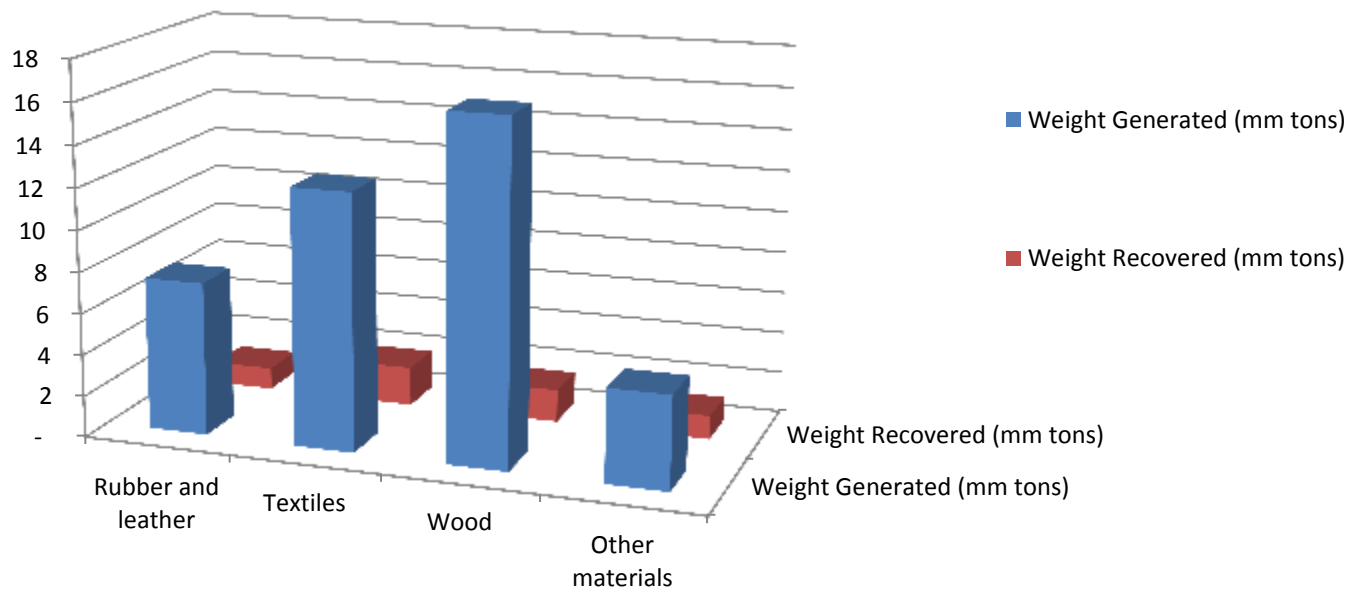
Glass

Paper

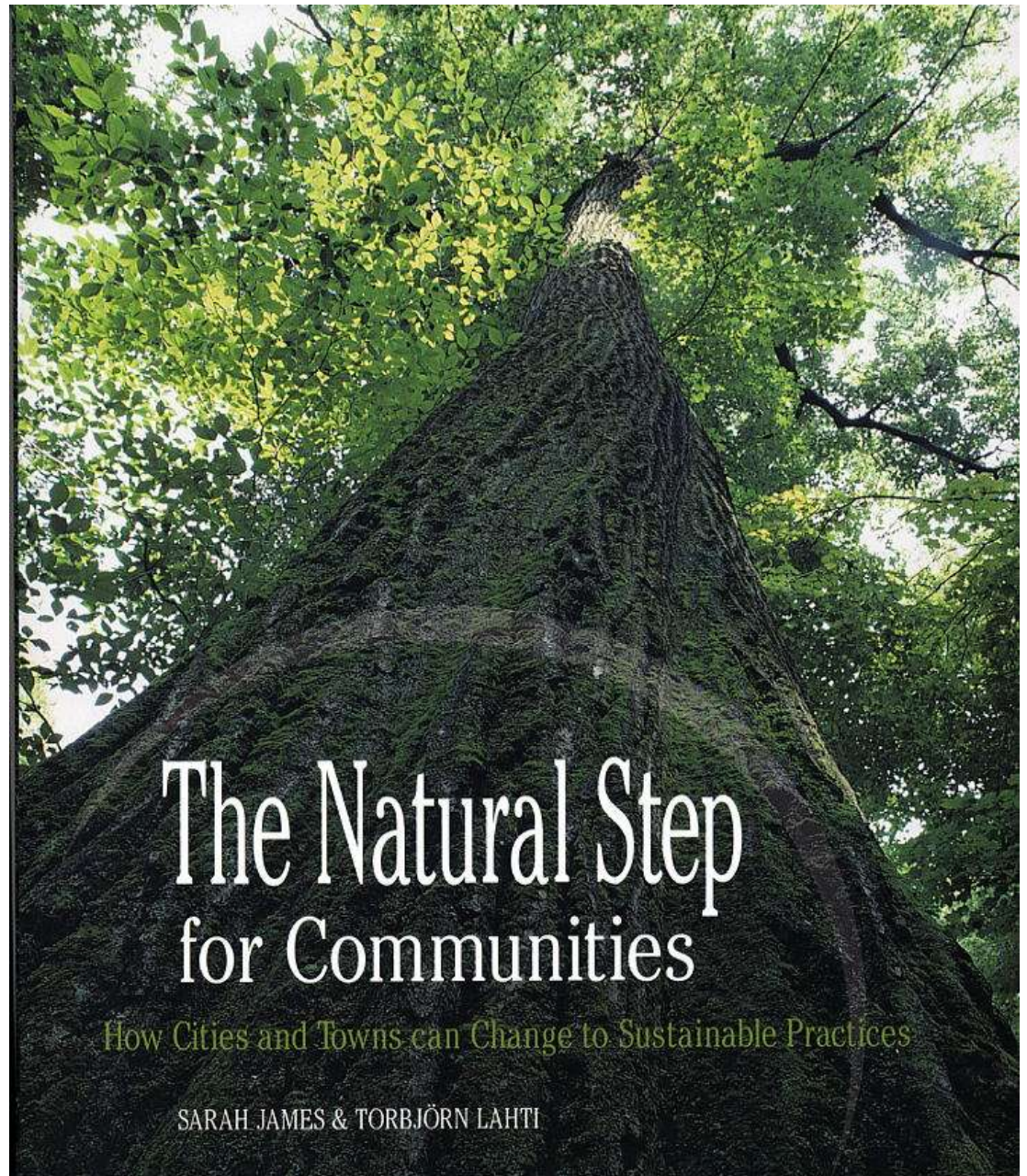
Plastic

Steel

Recovery outside of the 'Big 5'.



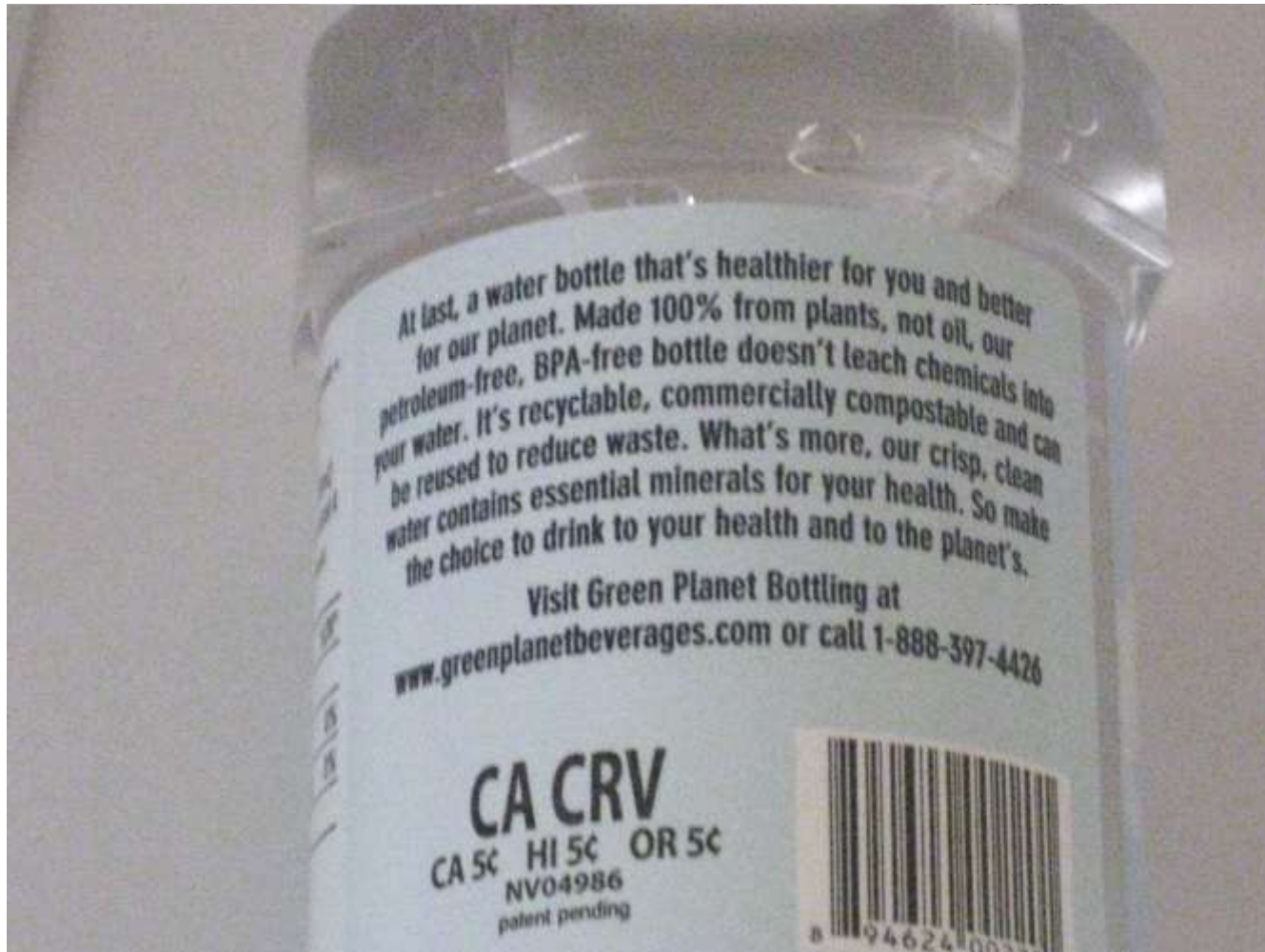
**The Natural Step
for Communities
by
James and Lahti**



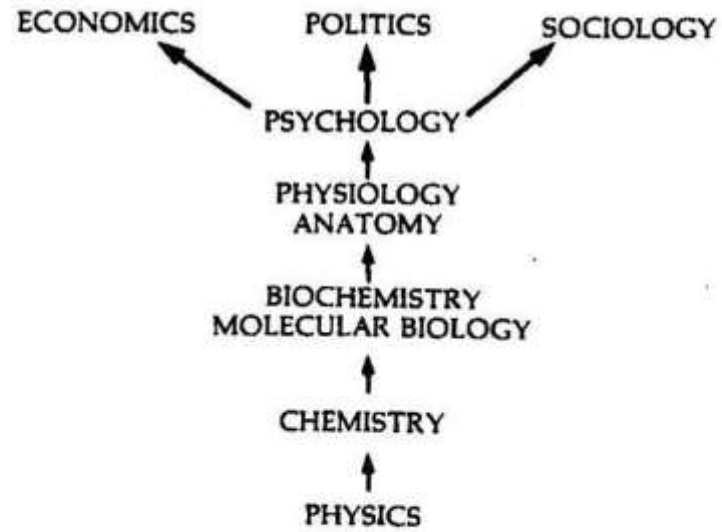
4 Systems Conditions

- The Natural Step Framework's definition of sustainability includes four system conditions (scientific principles) that lead to a sustainable society. These conditions, that must be met in order to have a sustainable society, are as follows:
- In a sustainable society, nature is not subject to systematically increasing:
 - 1. concentrations of substances extracted from the Earth's crust;
 - 2. concentrations of substances produced by society;
 - 3. degradation by physical means and, in that society,
 - 4. people are not subject to conditions that systematically undermine their capacity to meet their needs

Recyclers dislike PLA bottles because they contaminate PET stream. . . in that sense it is not recyclable.



THE NEW BIOLOGY



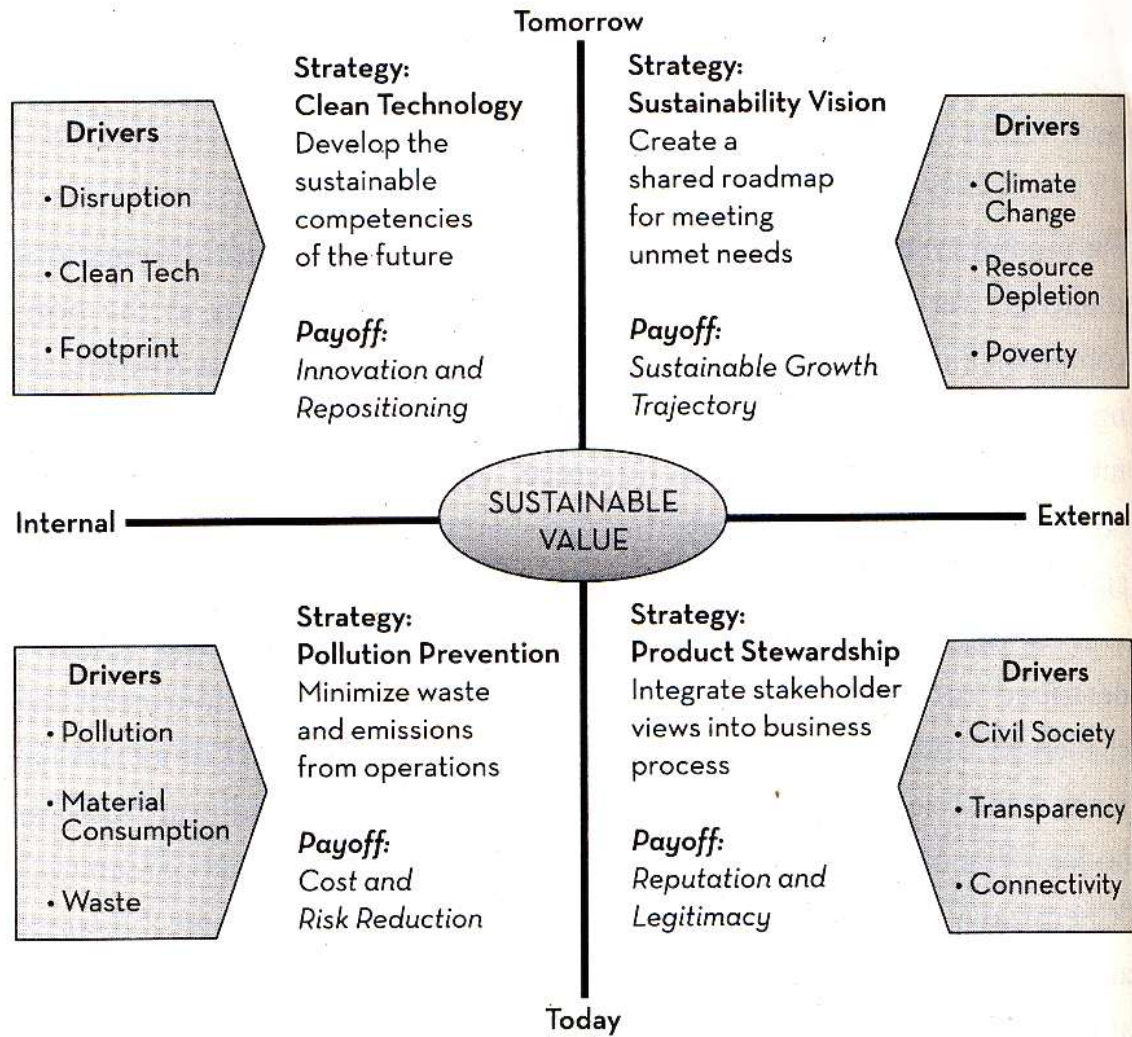


FIGURE 9.2 Sustainable Value Framework³