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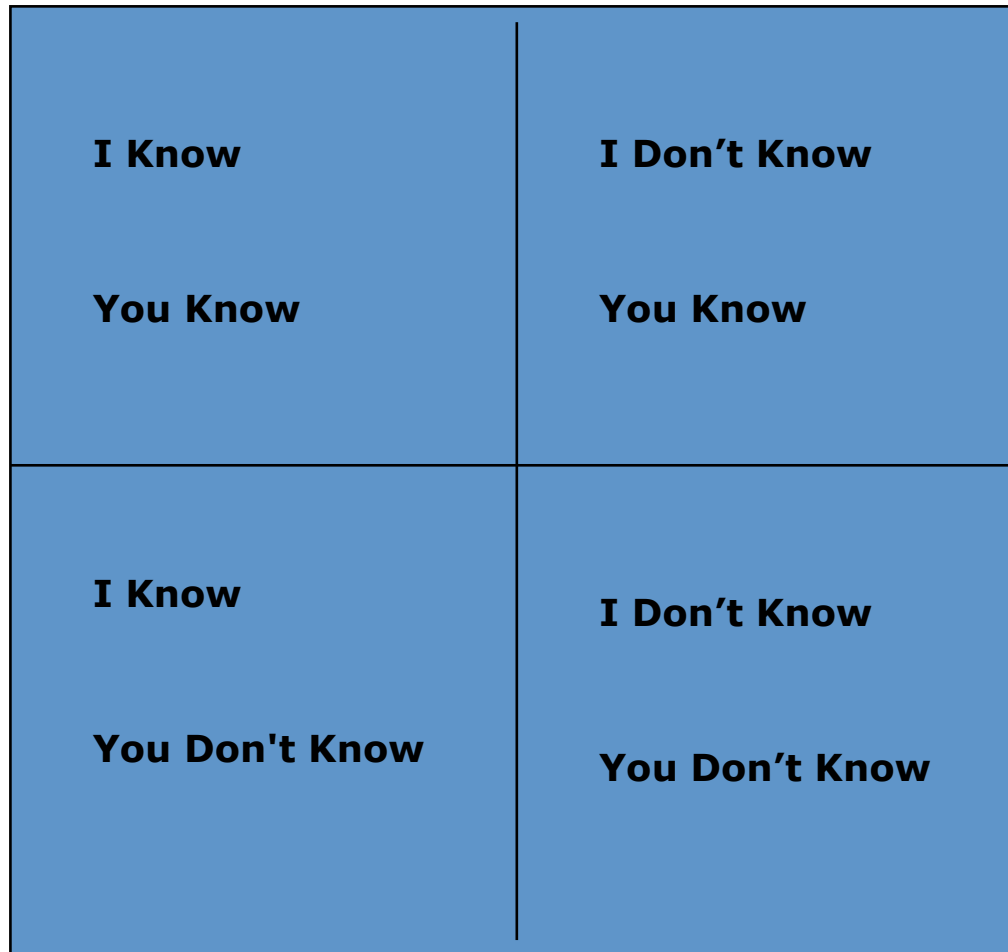
Green Mission Project  
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# Natural Food Industry Packaging Guidelines and Details



# The Johari Window

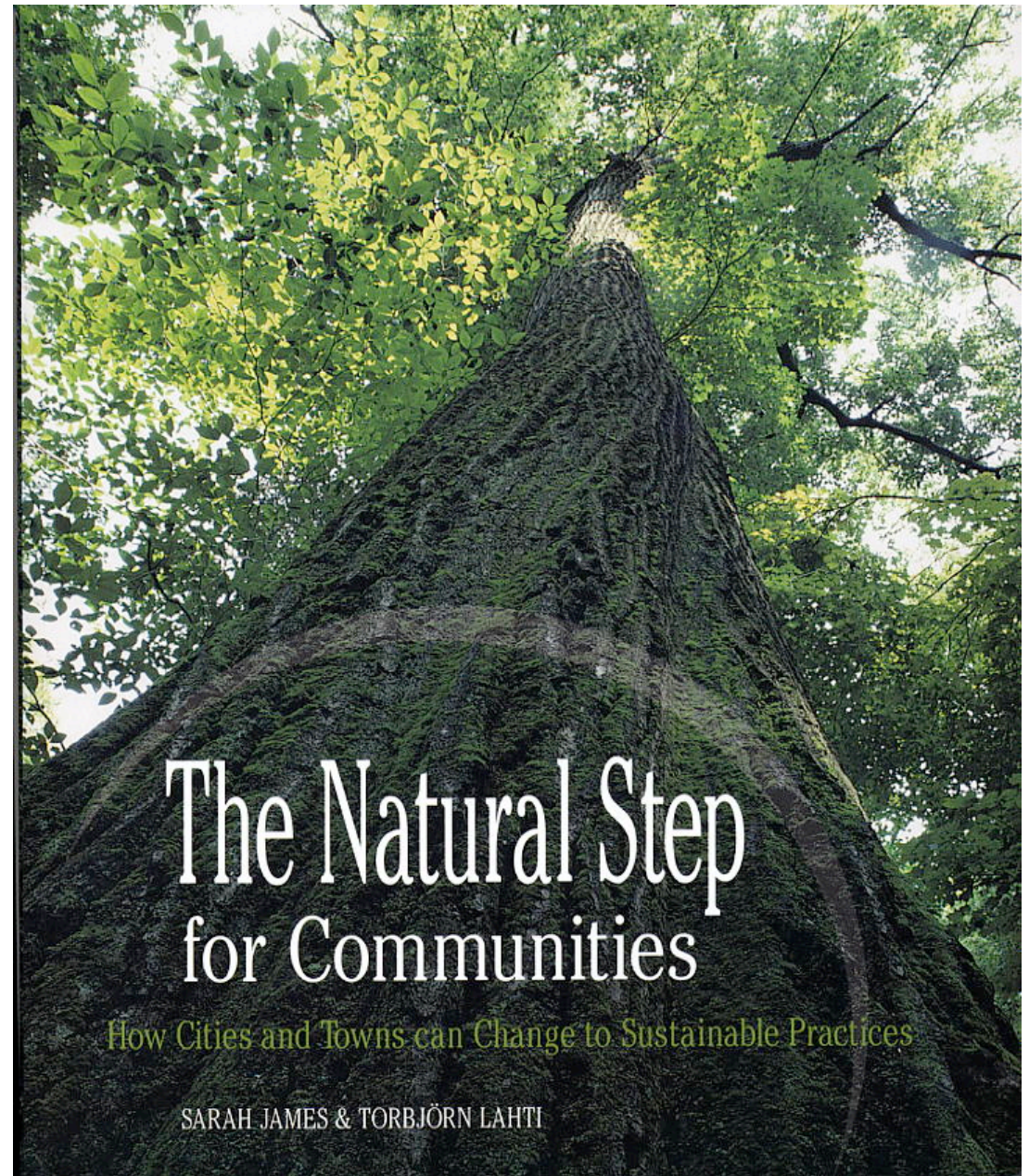


Environmental Identity

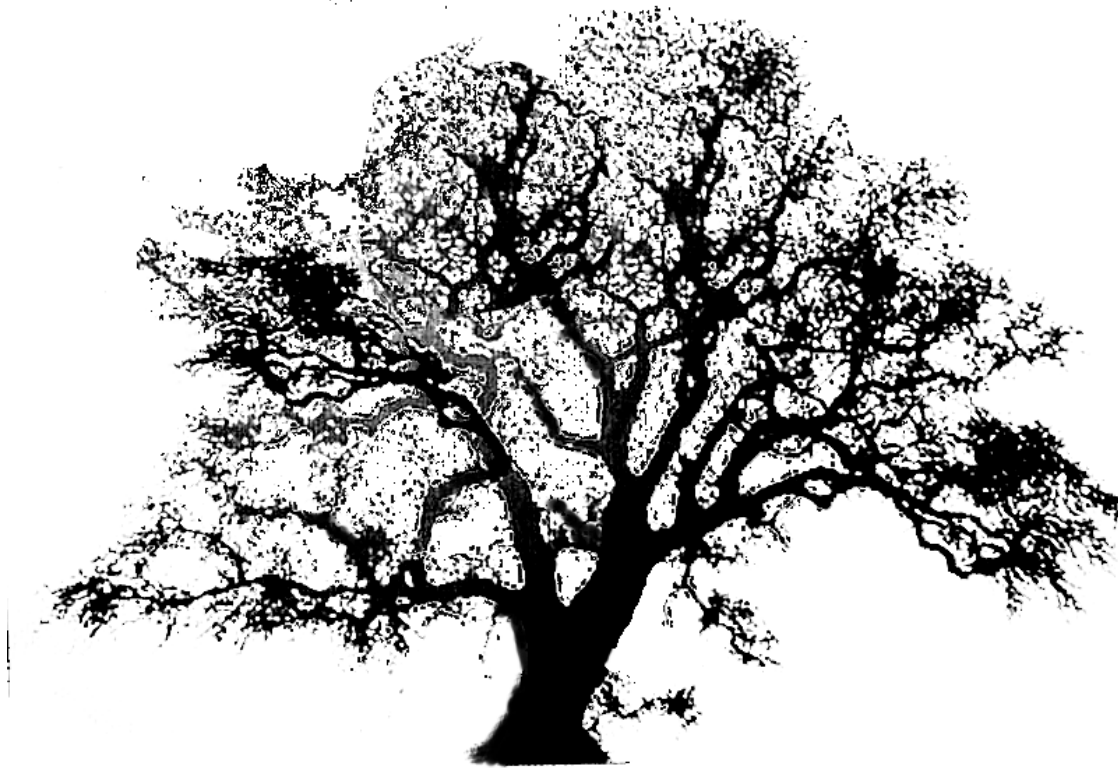
*“The significant problems  
we have  
cannot be solved  
at the same  
level of thinking  
we were at  
when we  
created them . . .”*

-- Albert Einstein

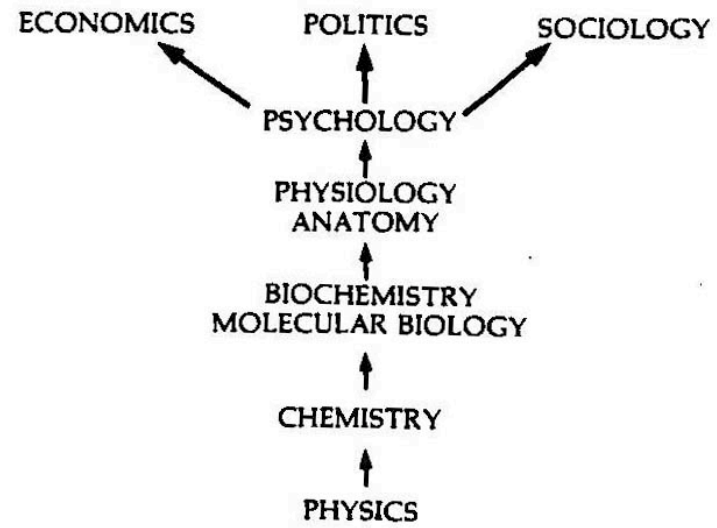
**The Natural Step  
for Communities  
by  
James and Lahti**



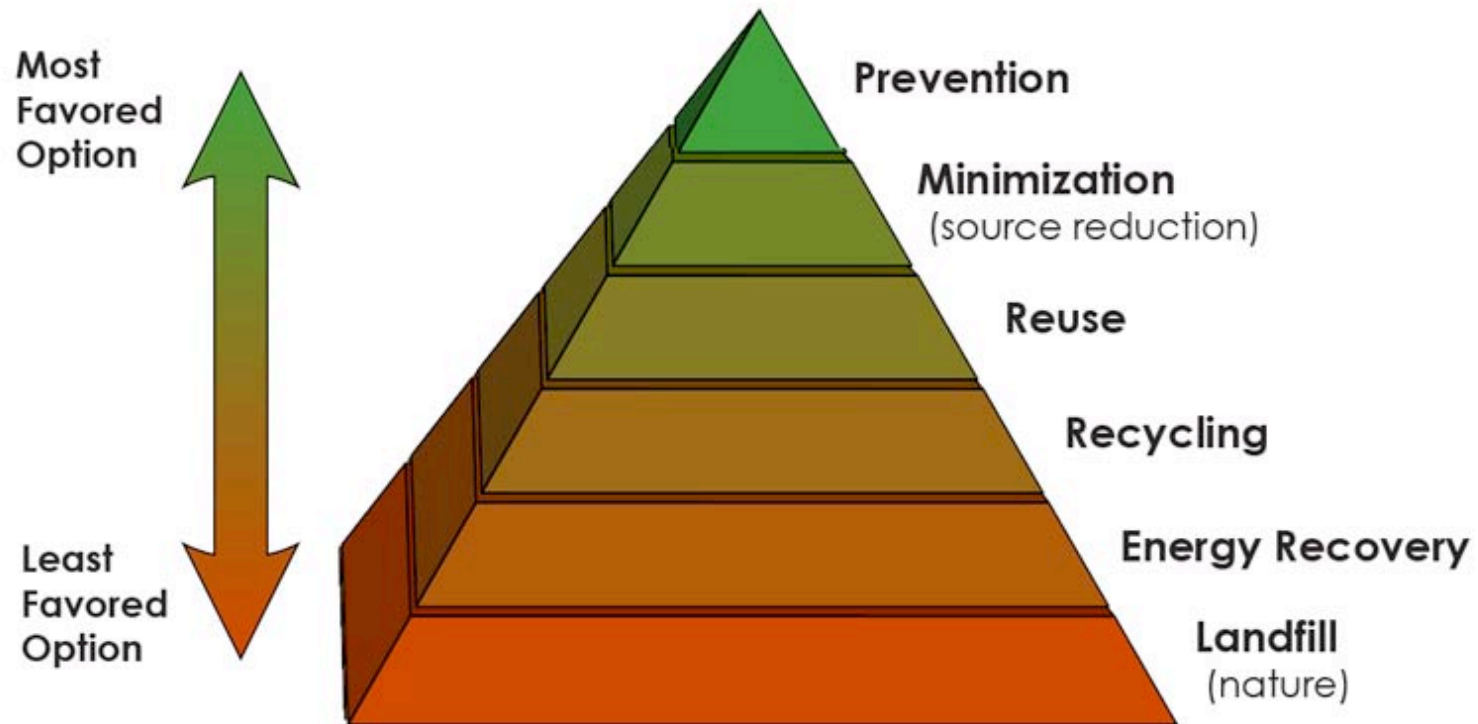
# The Oak Tree



# THE NEW BIOLOGY



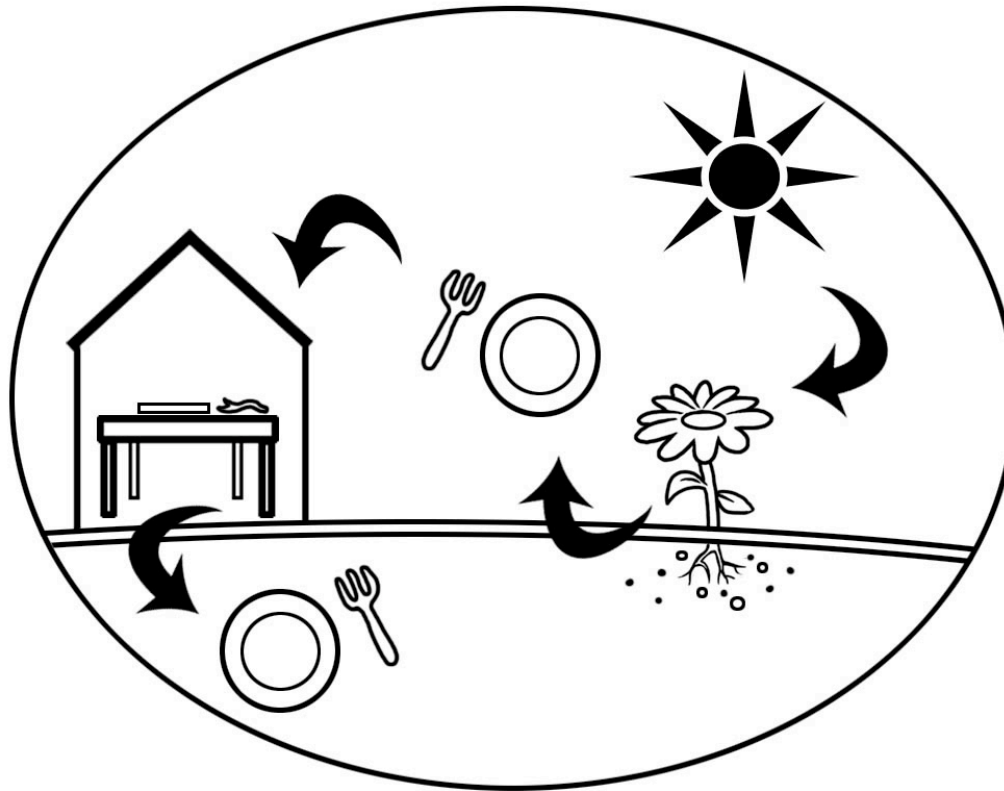
# Waste Hierarchy Protocol



# 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.**



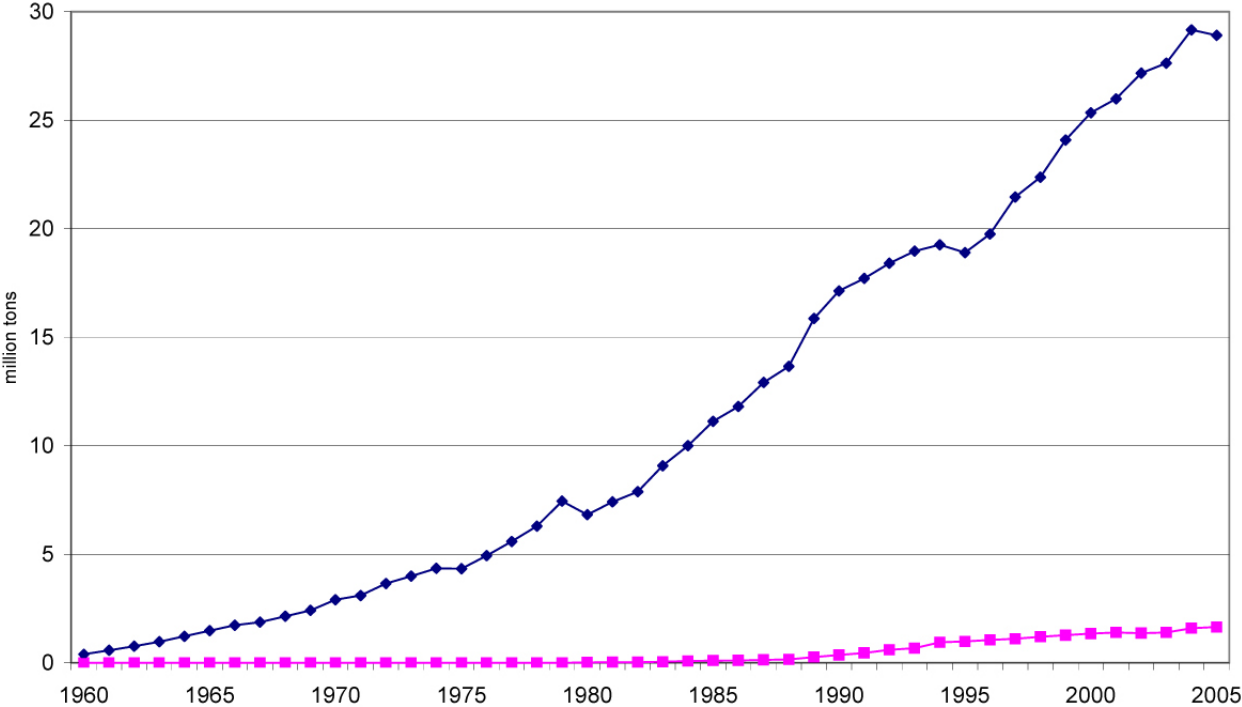
An aim of these packaging guidelines is to make landfilling, disposal into nature (whether by accident or not), and incineration, obsolete, by placing recycling and/or composting as the minimum goals.



# Plastics generated and recovered

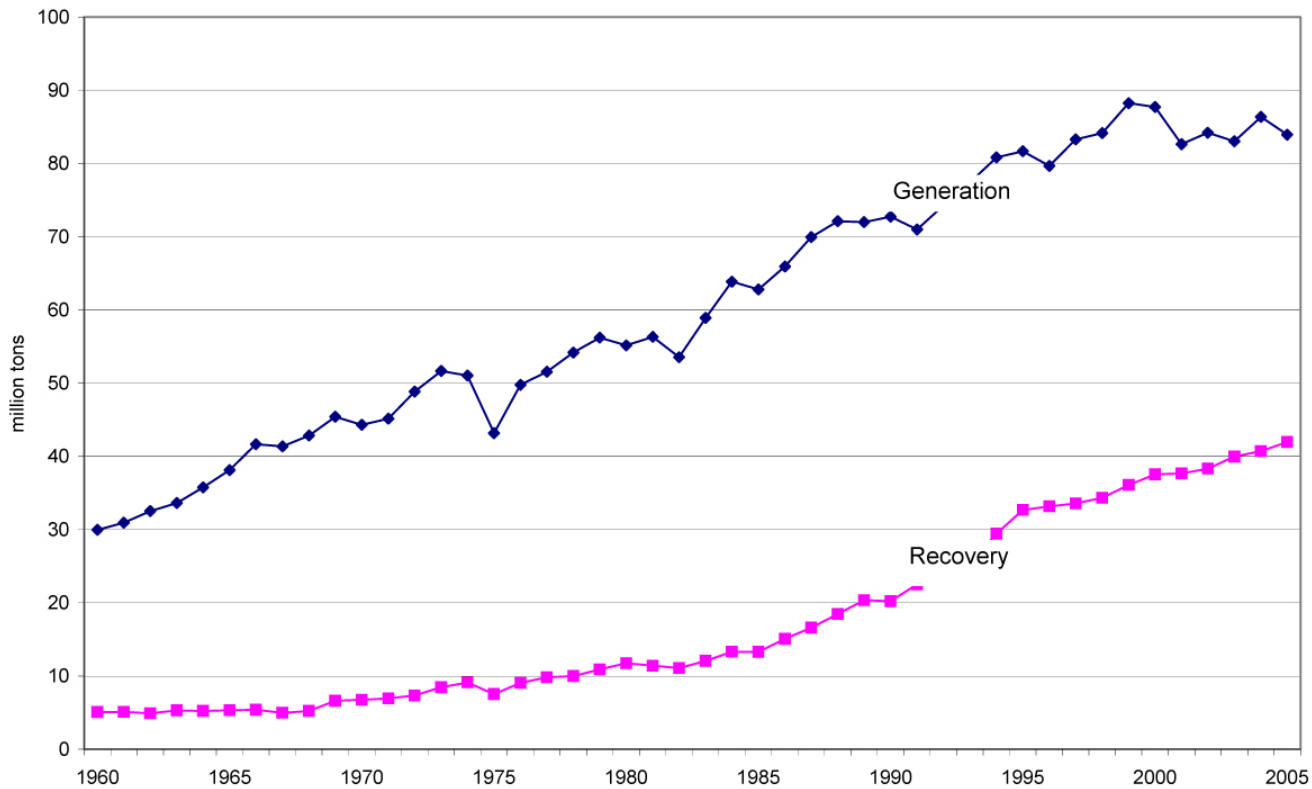
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Figure 9. Plastics generation and recovery, 1960 to 2005

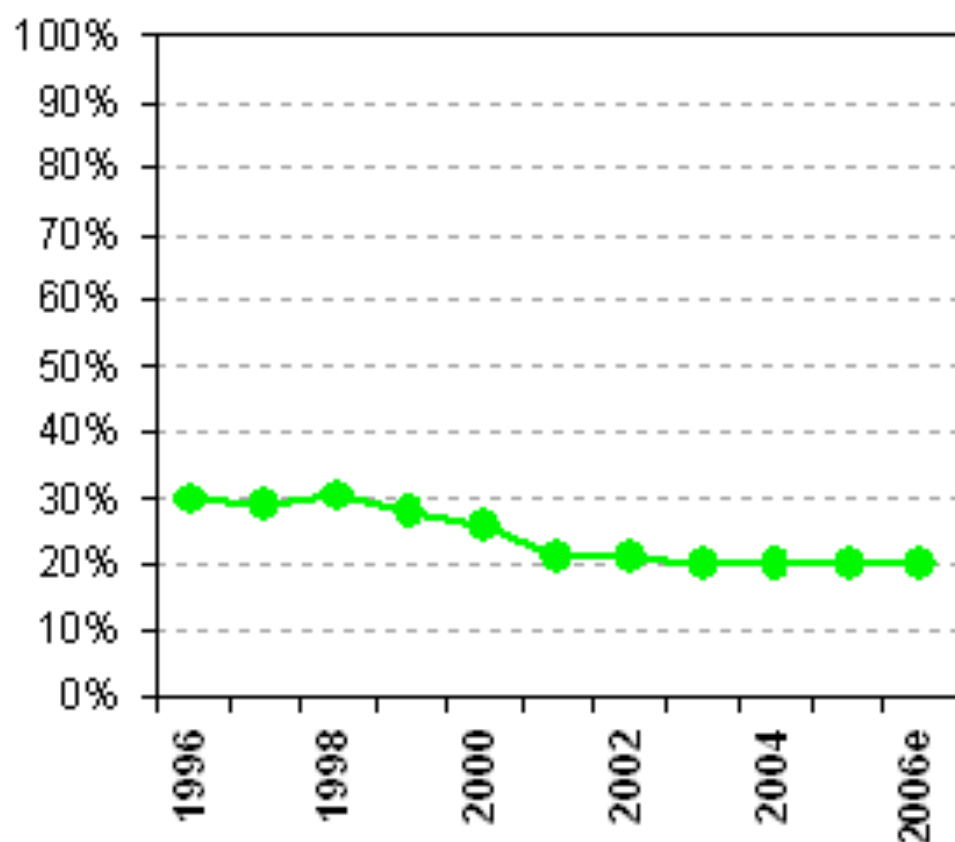


# Paper recovery grows at same rate as trashed paper.

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

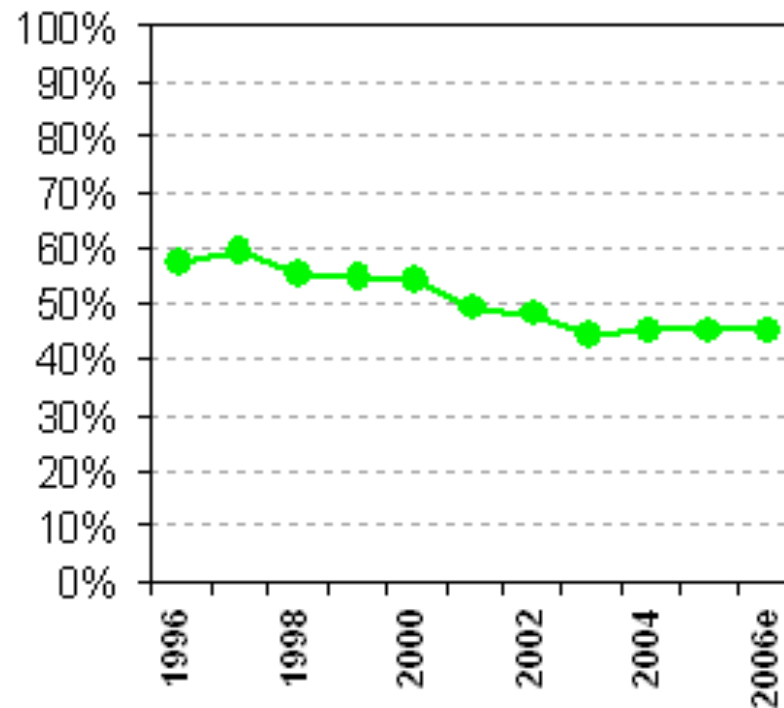


### Glass Beverage Bottle Recycling Rates, (%) 1996-2006e



© Container Recycling Institute, 2006

### Aluminum Can Recycling Rates, 1996-2006e



© Container Recycling Institute, 2006

# 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 for true costs' principle.

# Responsible Packaging Guidelines' Three Legs

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**.

# Responsible Packaging Standards' Three Legs



# Nutrient Cycles: Key Ecological Principle

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

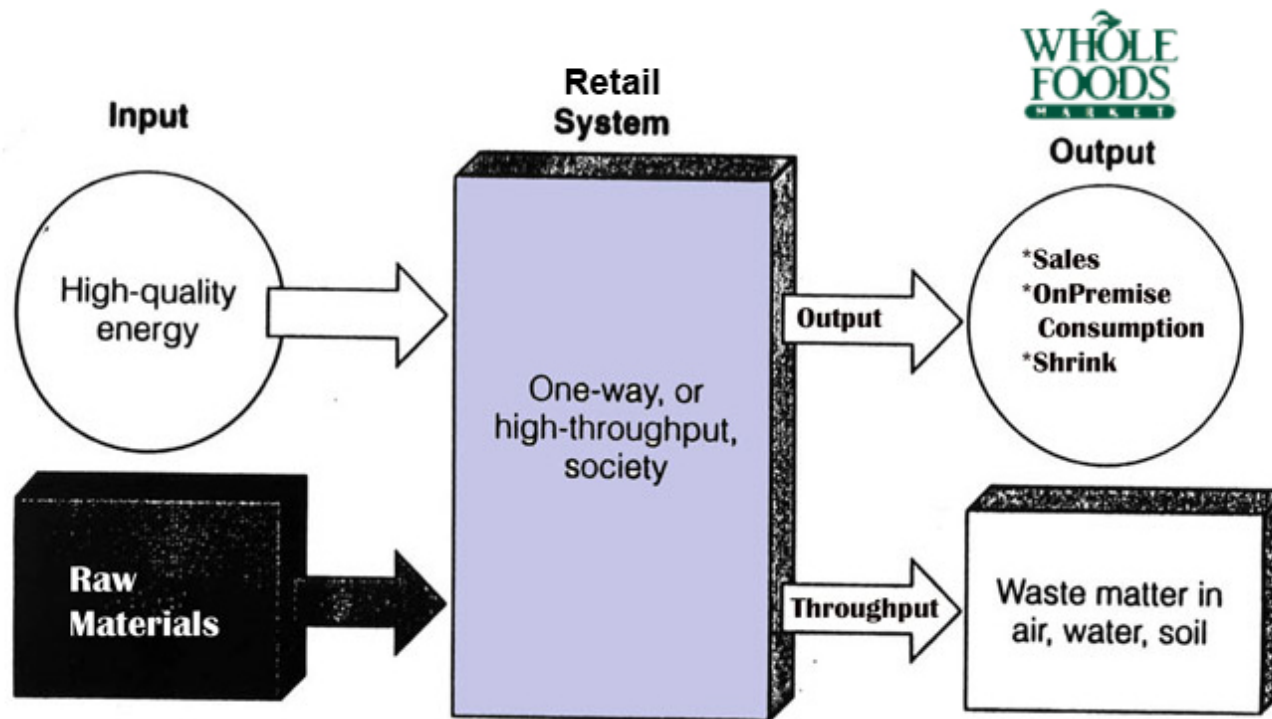
- Products of Consumption
- Products of Service

# Bill McDonough

- “There are two fundamental frameworks for metabolism: biological and technical nutrients. So we ask a company, ‘Are your materials safe and healthy for human and ecological systems? Do you have reverse logistics – do we know where this stuff comes from, where it goes, and how to get it back and it onto closed, zero-waste cycles?’ ”

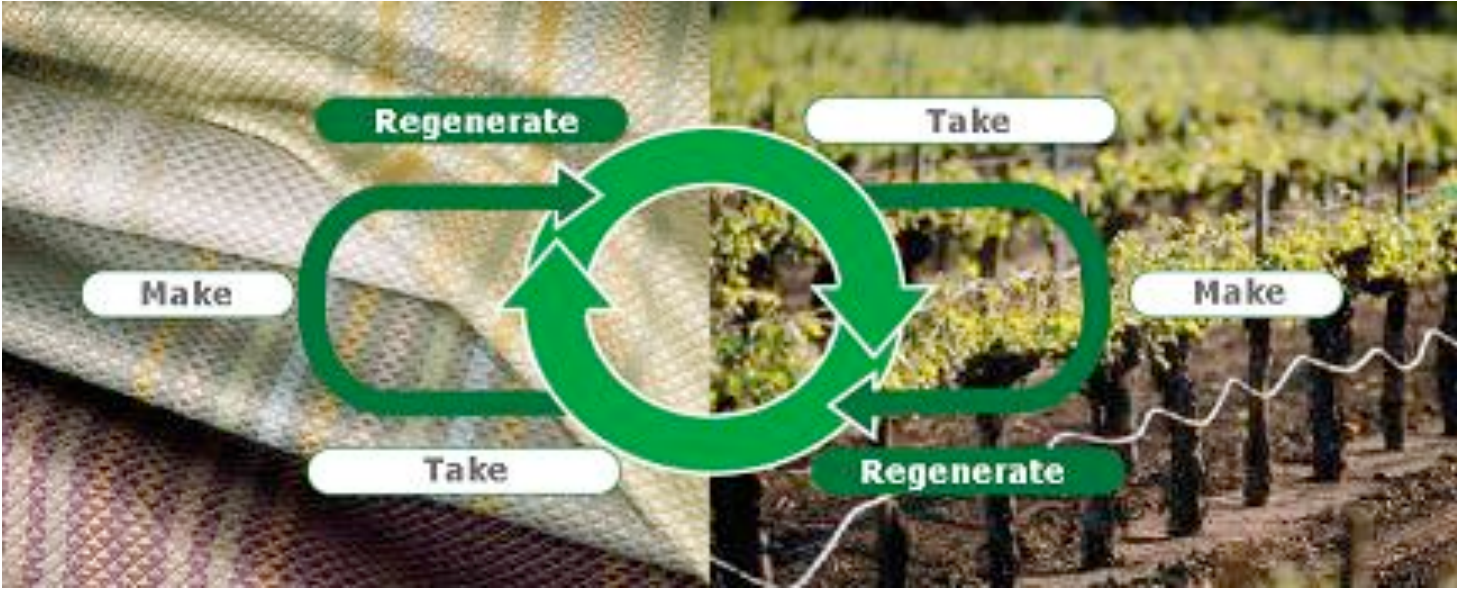
# Input Output Throughput

All stores and facilities have energy and material input, output and throughput (often what we call “waste”).

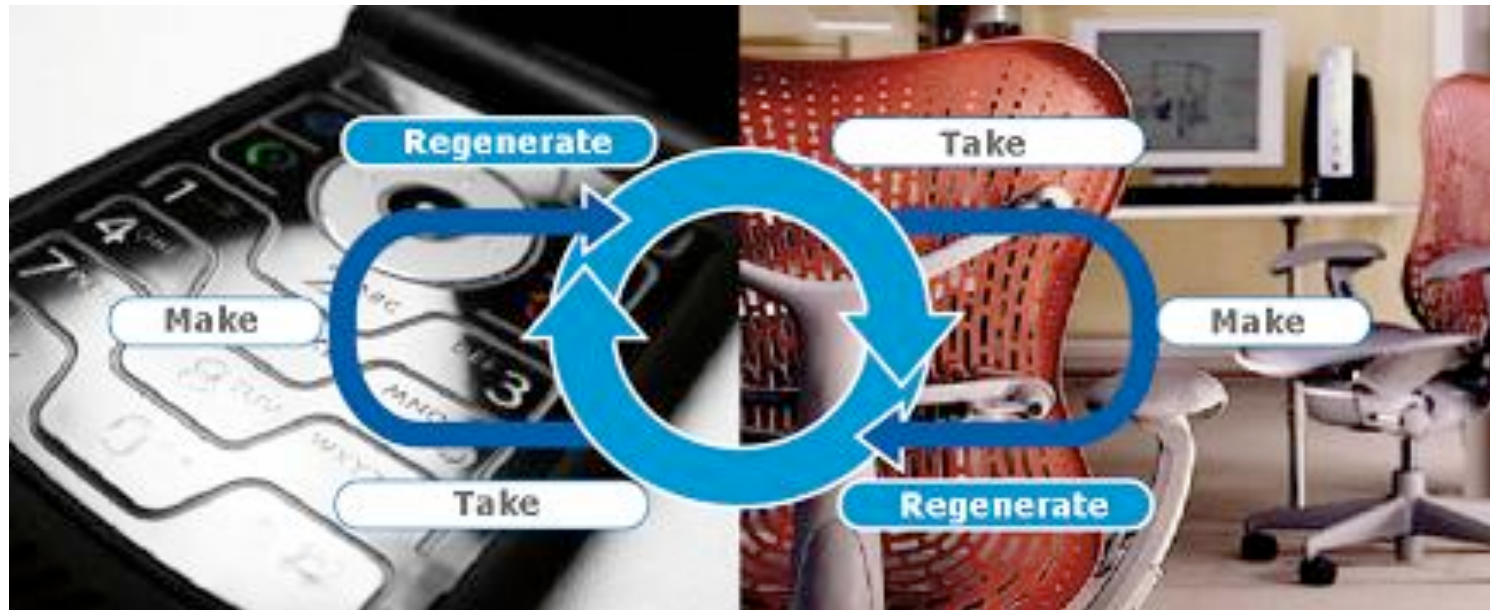


**Waste matter in air, water and soil needs to be food for something!**

# Products of Consumption are Biological Nutrients in the Biological Cycle



# Products of Service are Technical Nutrients in the Technical Cycle



# Wood / Paper Fiber (biological nutrients)

NO GMO crop source for bio-based (green cell) anything~

Preferred Materials:

- Highest recycled content without compromising required strength and quality
- Virgin-wood fibers certified by an independent,
- Third-party sustainable forestry organization.
- Corrugated constructed with wax replacement materials
- When these materials are used in packaging they
- should be composed of high recycled content.

# Aluminum, Steel and Glass (technical nutrients)

Highest recycled content without compromising required strength and quality.

DEVELOP bioregional recycling infrastructure: at least 30 to 50 recycling materials centers in North America for these technical nutrients. SET GOAL of 80% recycling rate, then 90% , etc.

Recreate reusable / refillable glass packaging schemes for products that people prefer in glass ( e.g. Wine, microbrews).

# Fossil-based Plastics (technical nutrients)

## Preferred Materials:

(Highest recycled content without compromising required strength and quality)

- High-Density Polyethylene (HDPE) #2 rigid & film Recycled (rHDPE) #2
- Low-Density Polyethylene (LDPE) #4 film Recycled (rLDPE) #4 film
- Polyethylene Teraphthalate (PET) #1 rigid Recycled (rPET) #1
- Polypropylene (PP) #5 rigid Recycled (rPP) #5

DEVELOP bioregional recycling infrastructure: at least 200 recycling materials centers in North America for these technical nutrients. SET GOAL of 50% recycling rate, then 80%, etc.

Create reusable / refillable packaging schemes for products that people prefer in these plastics.

# Fossil-based Plastics (technical nutrients)

## Obsolete Materials:

(no new packaging allowed that contain any % of these materials; these materials must be eliminated from your packaging and ingredient supply chain by (SET A DATE)))

- Polyvinyl Chloride (PVC) #3 film and rigid
- Polyurethanes (PU)
- Polystyrene (PS) #6 film and rigid
- Acrylonitrile Butadiene Styrene (ABS)
- Polycarbonates (PC) #7 film and rigid
- Acrylic
- Ethylene Vinyl Acetate (EVA)

# Wood / Paper Fiber (biological nutrients)

## Transition away from Materials:

- Reduce usage of hazardous chlorine compounds
- Wax Impregnated Medium, Curtain Coated Corrugated, Cascade Boxes

Obsolete Materials: (no new packaging allowed that contain any % of these materials; these materials must be eliminated from your packaging and ingredient supply chain by (SET A DATE))

- No ancient or protected forested materials
- No Chemicals / Heavy Metals / Toxins or Pesticides (but not limited to) that are known to have negative impact to life or the environment

# BioBased Materials

(such as non-tree fiber or green-cell-based plastics)

NO GMO crop source for bio-based (green cell) anything

Biobased material(s) are organic material(s) in which the carbon comes from contemporary (non-fossil) biological sources.

Biobased content is the amount of biobased carbon in the material or product as a fraction weight (mass) or percent weight (mass) of the total organic carbon in the material or product. ASTM Method D6866-05 is the US government approved method for determining the renewable/biobased content of biobased products.

# BioBased Materials

(such as non-tree fiber or green-cell-based plastics)

For Bio-based Materials Guidelines, see:

<http://www.sustainablebiomaterials.org/docs/SBCGuidelines%20070625-2.pdf>

At the end of the product's life, the product/package must be certified and labeled compostable by an acceptable certification organization or program:

- Biodegradable Products Institute (North America);
- AIB Vincotte Inter (Belgium);
- Japan Bioplastics Association (Japan);
- DIN CERTCO (European Union); or
- Any other third-party certification program that meets at a minimum the ASTM D6400 criteria or equivalent . The product must meet all aspects of D6400

# BioBased Materials

(such as non-tree fiber or green-cell-based plastics)

Bioplastics examples:

- Starch based plastics
- Polylactide acid (PLA) plastics
- Poly-3-hydroxybutyrate (PHB)
- Polyamide 11 (PA 11)

# Packaging Claims Standard : FTC Guidelines are the Baseline Minimum

For the federal government perspective, try the FTC  
Environmental Guidelines

<http://www.ftc.gov/bcp/online/edcams/eande/index.html>

# Packaging Claims Standard : FTC Guidelines are the Baseline Minimum

How can one be sure that stated environmental claims are actually true?

Manufacturers have been known to make misleading, trivial, irrelevant and false statements on packaging. Statements like "biodegradable" or "contains recycled content" or "earth friendly" are so vague as to have no practical meaning.

The more specific a claim, the easier it is verify.

Non-authentic (vague), or non-third-party-verified, claims are to be avoided. This is true whether the claims are on the package, or used in marketing collateral, or advertising.

# Packaging Claims Standard : FTC Guidelines are the Baseline Minimum

The FTC seeks to prevent false or misleading marketing claims, including environmental or "green claims." The FTC's Environmental Marketing Guides, also called the "Green Guides," apply to all forms of marketing for products and services: advertisements, labels, package inserts, promotional materials, words, symbols, logos, product brand names and marketing on the Internet or via email.

These web pages are designed to help consumers and businesses understand the FTC's Environmental Marketing Guides, and learn about other environmental and energy areas of concern to the FTC:

## **FTC Green Guides Review**

[http://www.ftc.gov/bcp/edu/microsites/energy/about\\_guides.shtml](http://www.ftc.gov/bcp/edu/microsites/energy/about_guides.shtml)

"Less bad" packaging claims are likely to be under greater consumer scrutiny .

Actual chapter title in Cradle to Cradle  
is "Less Bad is not Good."

# 51% bar for any recovery, next-life, claim:

With the claim of "recyclable" or "compostable":

Is this true 51% of time the consumer has to "recycle" or "compost" that package?

Do they have reasonable (easy) access to a system of recovery and reprocess for that claim to be actualized?

Claims of "recyclable" and/or "compostable" should be true, at minimum, 51% of time to be claimed, starting (Set Date).

# R. Buckminster Fuller

- “You never change things by fighting the existing reality.
- To change something, build a new model that makes the existing model obsolete.”

We all have the choice.

