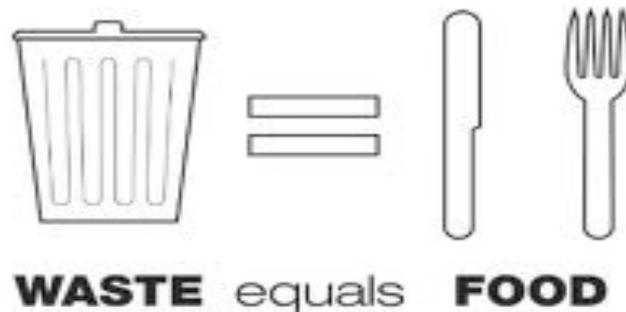


Closed-Loop Thinking

William McDonough and
Michael Braungart

Cradle-to-Cradle

“To eliminate the concept of waste means to design things – products, packing, and systems – from the very beginning on the understanding that waste does not exist.”



Biological Nutrients Cycle

- Materials designed to decompose right into the earth by being consumed by organisms in the soil
- If products go back into the earth, they cannot contain mutagens, carcinogens, heavy metals, endocrine disrupters, persistent toxic substances, or bio-accumulative substances

Biological Nutrient Cycle

Example

- Fabric developed with materials that could essentially be used for mulch; Ciba-Geigy, European chemical company, helped with finding 38 chemicals that could be used in developing the fabric that would not be harmful to the Earth when decomposed
- Led to no government regulation of the fabric because there was no waste of harmful chemicals being used in the process
- Employees happy because were not exposed to the harmful chemicals and did not have to wear masks/gloves

Technical Nutrient Cycle

- Designed to recirculate to the technosphere
- “Upcycling” - allowing materials to have high quality a number of times
- Chemicals for technical products will not harm the earth with this cycle

Technical Nutrient Cycle Example

- Interface, carpet company, adopting the technical cycle idea by making carpets in “up-cycling” materials and leasing the service of the carpet
- Consumers pay for the use of the carpet, but the company owns the materials and upgrades the carpet for the consumer when needed by using the recycled material from older carpets
- The manufacturer can control the breakdown of the carpet and make sure the right materials go through the right cycle, which produces no waste
- “Selling Intelligence, Not Poison”

Cycles Intentions



- Produce no useless or potentially dangerous waste
- Save manufacturers money in materials overtime
- Diminish the extraction of raw materials

Partnership with Nature

- Developing a relationship between nature and humans
- Use the productiveness of the Earth to our advantage (solar, wind, and water power)
- Become effective for the Earth by giving back nutrients

Idea of "less bad"

Green Economy

Decoupling

Weak
Sustainability

Short term solution

Closed-Loop Thinking

Steady-State
Economy

Strong
Sustainability

Rethinking design

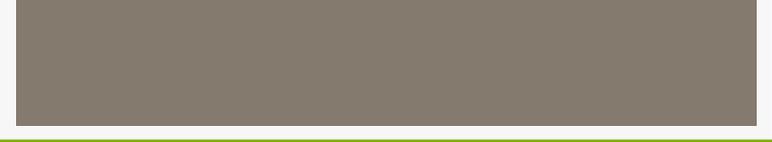
New Concept of Sustainability

- Sustainability today comes from a fundamental design flaw
- McDonough believes we need to reteach the way we think about design
- Think of ecology and equity first and economy will follow
- Having a finite space and producing within limits without exponential growth

Certified Products



- Mirra Chair from Herman Miller that is Cradle-to-Cradle certified
- Cost is \$650
- Can the average citizen afford this? Would they want to buy this?



Can we achieve this
level of
sustainability?