Sustainable Materials Management

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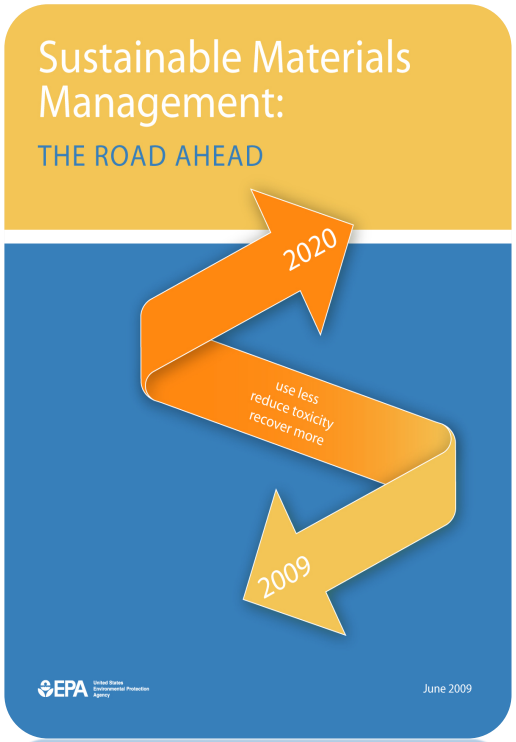
CHANGING HOW WE THINK ABOUT OUR RESOURCES FOR A BETTER TOMORROW

SMM: The Road Ahead

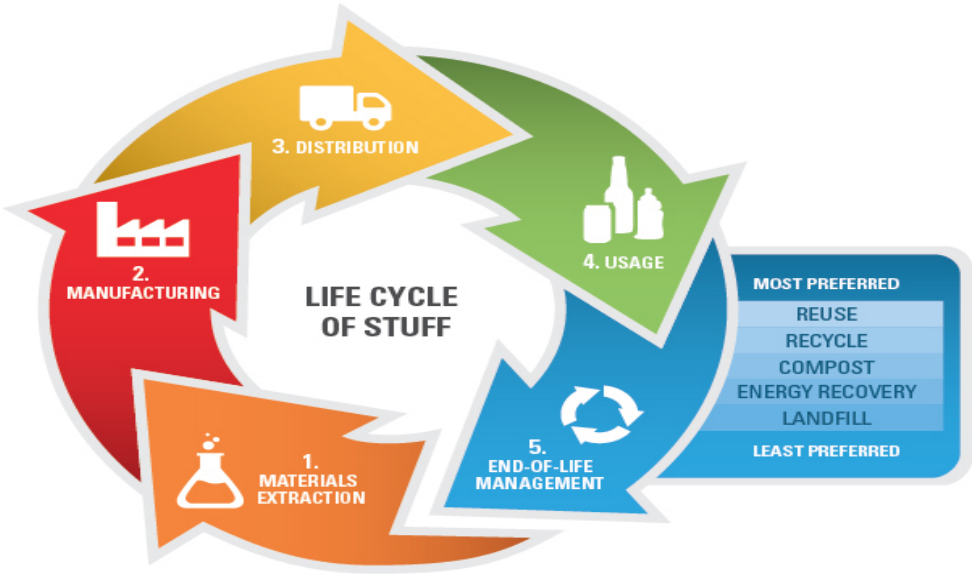
http://www.epa.gov/

- 3 Major Recommendations:
  - Expand efforts to promote life cycle materials management, building on current programs, including core regulatory programs.
  - Build capacity and integrate materials management approaches in existing government programs.
  - Accelerate the broad, ongoing public dialogue on life cycle materials management.

The findings & recommendations from the report continue to serve as the foundation of EPA's current and future materials management efforts.



What is Sustainable Materials Management?



A systematic approach to using and reusing materials more productively over their entire lifecycles

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Why SMM?

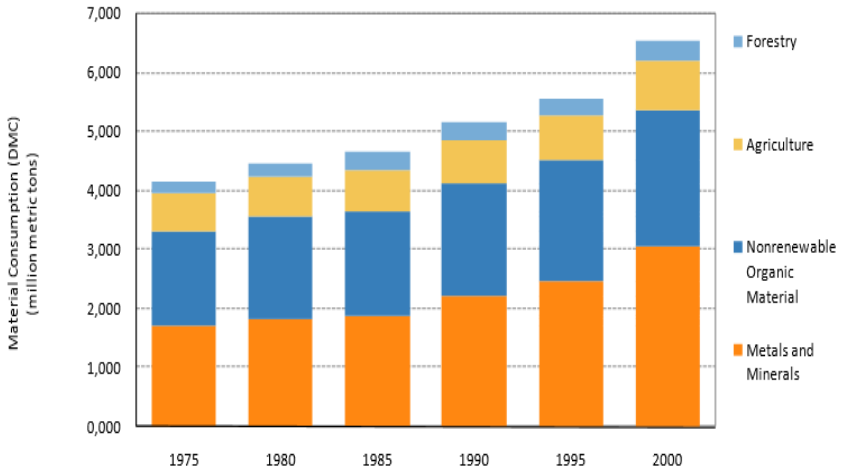


Figure 1: Materials Consumption in the United States by Sector of Origin, 1975–2000
Source: WRI Material Flows Database 2005

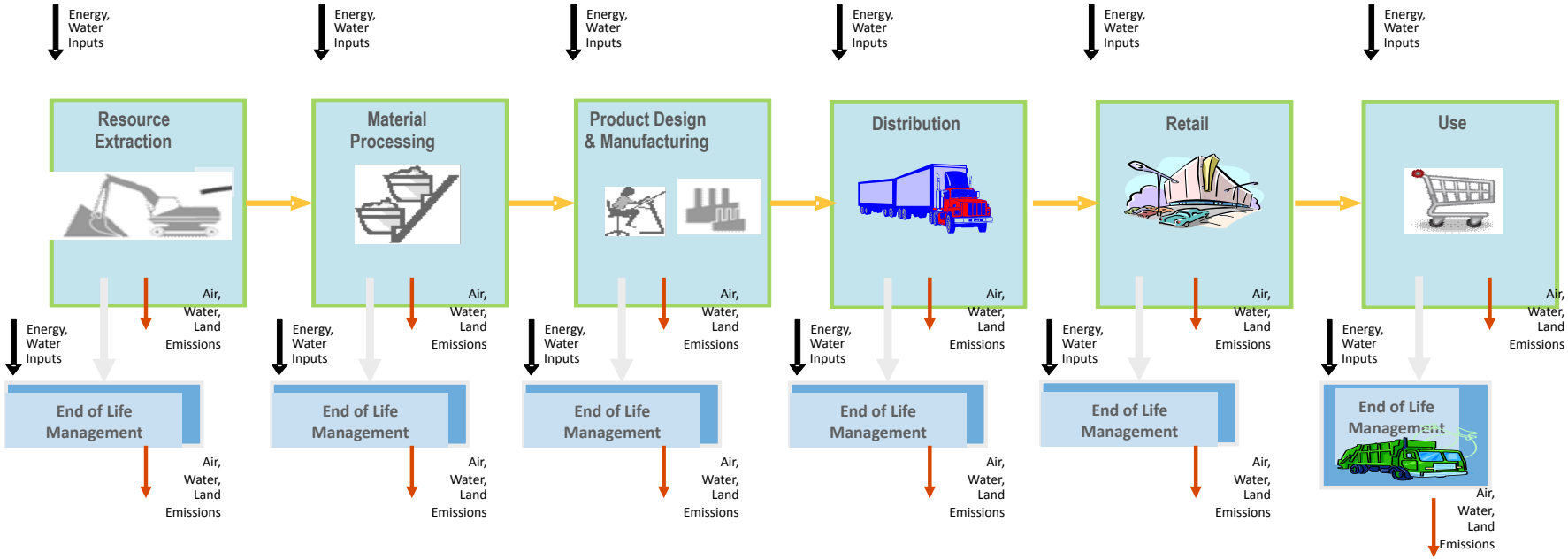
- **Answers Complex Questions about Choices and Impact -** Everyday, people make choices about products and services:
  - Which products do we buy?
  - What are they made of and how are they made?
  - How do we use them?
  - What do we do with stuff when we're through with it?

  All of these choices have environmental consequences – some large, some small, almost all unseen.

- **Multi-attribute -** Very narrowly focused attributes like "recyclable", "biodegradable", or "organic" don't tell us about all of the other potential environmental impacts that occur in all stages of the life cycle.

- **Offers Inter-related Solutions -** SMM requires interaction between programs that deal with a wide range of media (air, water, etc.) to identify and address "hotspots" which cause major environmental impacts.

Material/Product Life Cycle



Which is better from a waste perspective?

Steel Can with Plastic Lid

Plastic Canister

Flexible Pouch

Recycled	Incinerated	Landfilled	Consumer Action
62% of cans 20% of lids		38% of cans 80% of lids	Does not necessarily need active consumer action
15% of canisters	17% of canisters 20% of lids	68% of canisters 80% of lids	Requires active consumer action
Not recyclable	20%	80%	

Data sources provided on last slide

Which is Better From a Life Cycle Perspective?

(Note: Use Phase not included)

Coffee Packaging (11.5 oz product)	*Package Wt.	*Product-to-Packaging Ratio	*Energy Consumption (MJ/ 11.5 oz.)	*CO2 eq Emissions/ 11.5 oz	**Efficient Use of Space (relevant for storage and transportation)	**Recyclable postconsumer	***MSW Waste Generated (lbs./ 100,000 oz. of product)
	~ 4 oz.	3:1	4.21	0.33	no	yes	1,305
	~3 oz.	5:1	5.18	0.17	no	yes	847
	~0.4 oz.	29:1	1.14	0.04	yes	no	176

Data sources provided on last slide

Space Efficiency:

transportation after filling and on store shelves

12 pouches

12 cans or cannisters

Space Efficiency: transportation before filling

Empty cans and cannisters, made off-site, trucked to filling plant

Giant roll of flexible laminate shipped to filling plant, pouches made and filled in one operation

What did the SMM approach tell us?

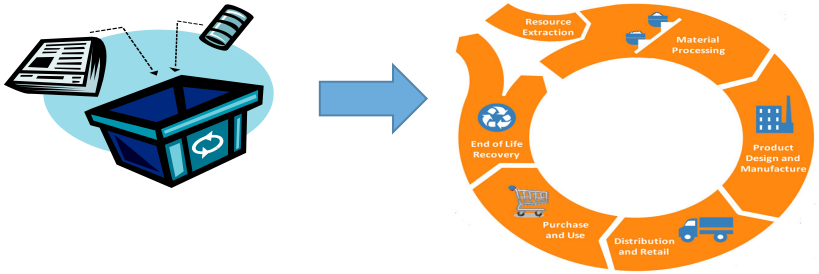
- If we focus on one attribute or one lifecycle stage, we can miss the big picture

- If we look at the entire lifecycle, we can make better choices and reduce environmental impacts

Recycling is an Important Part of SMM

- GHG emissions associated with energy production are avoided through recycling & source reduction
- Forest carbon sequestration increases when wood products are source reduced & recycled
- Recycling & Source Reduction Avoid:
  - CH_4 emissions from landfills
  - CO_2 emissions from waste combustion

SMM and Recycling



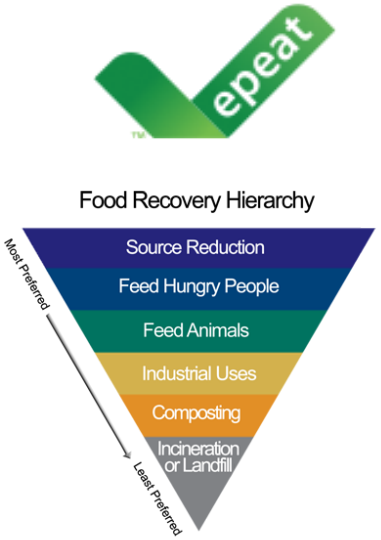
Is the recycling system in place meeting *needs*?

- Commodities continually change
- Clean recycled materials needed
- Avoiding disposal in landfills

Is the recycling system resilient?

- Are we wedding ourselves to technologies that cannot easily adapt to changing commodities?
- Are we avoiding unintended consequences?

SMM and Recycling



- Design for ability to repair, reuse and recycle electronics
- EPA Characterization Report, Jobs Study and State Measurement
- Food Recovery Challenge participants diverted 375,000 tons of food from landfills by improving purchasing practices and increasing food donation and composting
- EPA's multi-stakeholder packaging dialogue on sustainable packaging
- Design for building disassembly
- Report on the current environmental knowledge associated with reusing and recycling construction and demolition (C&D) materials

Thank You!!!!

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