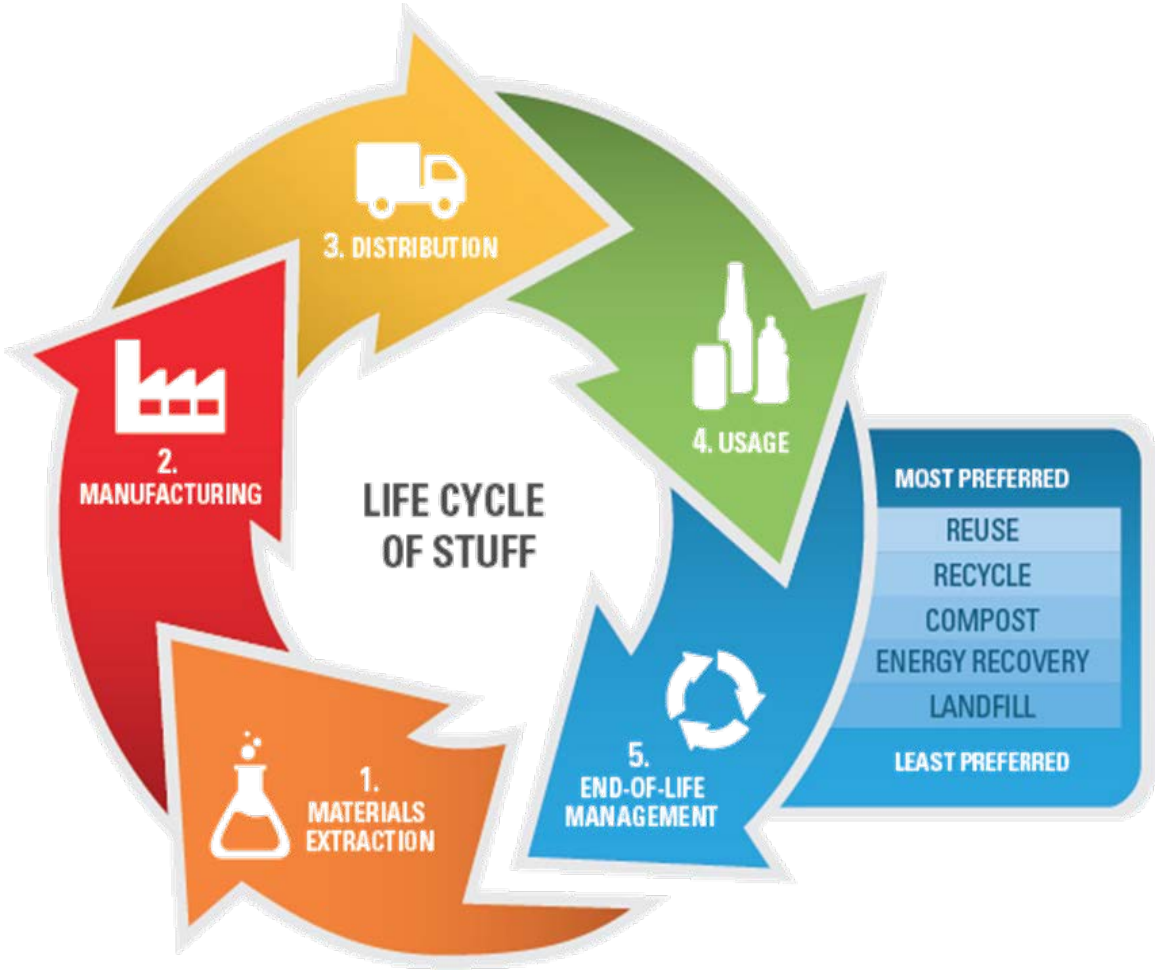
Driving Toward Sustainable Materials Management

Cheryl Coleman, Director
Resource Conservation & Sustainability Division
U.S. EPA Office of Resource Conservation and Recovery

Contributions of Life Cycle Thinking to Sustainable Development Pathways – and the Role of Global LCA Data Access Network

Kyoto, Japan
October 7, 2016

What is Sustainable Materials Management?



"An approach to serving human needs by using/reusing resources productively and sustainably throughout their life cycles, generally minimizing the amount of materials involved and all associated environmental impacts."

Sustainable Materials Management: The Road Ahead, EPA (2009)

SMM Offers New Opportunities to Address Climate Change

- In 2009, the U.S. EPA estimated that materials management accounts for 42% U.S. GHG emissions when looking across the life cycle.

- Systems-based approaches such as sustainable materials management potentially can address the gap in U.S. Intended Nationally Determined Contributions.

- According to the World Resources Institute, the manufacturing sector is the third largest near-term GHG abatement opportunity to achieve the U.S. GHG reduction commitment beyond the Climate Action Plan.

    - Resource Efficiency and waste reduction are primary levers.

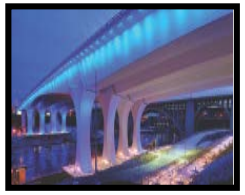
Life Cycle Costs of Externalities

- "Costs of pollution, ecosystem depletion and health impacts have grown steadily."
  - Now exceed $ 1 trillion/year for US companies - ~equal to 6.2% of GDP.
  - $3 trillion/year for global companies.
- Access to life cycle information helps us better understand the real costs associated with the products and services we demand.

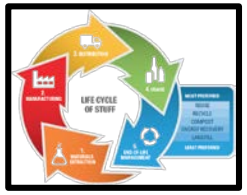
Source: State of Green Business 2015 by Joel Makower and the editors of GreenBiz.com

U.S. EPA's SMM Strategic Plan for FY2017 – FY2022

- Life Cycle Thinking
- Built Environment (buildings, roads, bridges, infrastructure)
- Sustainable Management of Food
- Sustainable Packaging
- Sustainable Electronics Management
- Measurement
- International Efforts








Life Cycle Information Can Help Government in Prioritizing, Collaboration, and Policy Approaches

- Prioritizing and strategic planning.
  - Life cycle information can help target program resources to where they may be most effective (i.e., hotspots with real opportunities) in achieving significant environmental impact reductions.
- Challenging preconceived ideas about where and how agencies should target their efforts and policy approaches to mitigate environmental issues.
- Avoiding unintended consequences.
- Identifying key partners and stakeholders.

Some Policy Approaches Used by the U.S. Government

- Applied Research
  - U.S. Life Cycle Assessment Commons
  - OpenLCA (common, open-source platform).
  - Data Interoperability
  - Global Network of Interoperable LCA Databases (GLAD)
  - Near-field Exposures (life cycle context)
  - Spatial Impact Modeling
  - Using LCA to Evaluate Green Infrastructure and Decentralized Municipal Water Systems
  - Integration of LCA into Decision-Support Methodology and Software
  - SMM Prioritization Tool
  - Business Models
- Information and Guidance
  - Waste Reduction Model (WARM)
  - Product Category Rule guidance
  - Guidance on Data Quality for Life Cycle Inventory Data
- Voluntary Standards (life cycle-based)
  - National Standards Foundation sustainability standard for professional service providers
  - Electronic Product Environmental Assessment Tool (EPEAT) standard

Some Policy Approaches Used by the U.S. Government

- Procurement Practices
  - Draft Guidelines for Product Environmental Performance Standards and Ecolabels for Voluntary Use in Federal Procurement
  - Dept. of Defense Acquisition Tool for Automated LCA Impact calculations and costing
  - Dept. of Energy Material Flows through Industry (MFI) and Lifecycle Industry GHgas, Technology, and Energy through the Use Phase (LIGHTen-U) tools
  - General Services Administration Social Impact Tool and Hotspot study

- Convening stakeholders
  - 2010 and 2011 - Sustainable Financing Of Materials Management at the Local Level
  - 2011 – Green Servicizing
  - 2014 – Forum on Sustainable Electronics
  - 2015 – Sustainable Food Management Summit
  - 2016 – G7 Workshop on the Use of Life Cycle Concepts in Supply Chain Management to Achieve Resource Efficiency

- Regulations
  - 2015 – Definition of Solid Waste

SMM and the G7 Alliance on Resource Efficiency

"We will work with business and other stakeholders to improve resource efficiency with the aim of also fostering innovation, competitiveness, economic growth and job creation. We encourage all countries to join us in these efforts." – G7 Leaders Declaration, May 2016

G7 Leaders' Summit June 2015 established the Alliance on Resource Efficiency to:

- Serve as a forum to share knowledge and create information networks on a **voluntary basis**.

- Collaborate with businesses and other relevant stakeholders to advance opportunities offered by resource efficiency, promote best practices and foster innovation.

U.S.-Hosted G7 Workshop

(https://www.epa.gov/smm/workshop-summary-proceedings-document-g7-alliance-resource-efficiency-us-hosted-workshop-use)

- The U.S. hosted a workshop under the G7 Alliance on Resource Efficiency in March 2016.
  - Focused on the use of life cycle concepts in supply chain management.
  - Used several examples from the auto sector to generate discussion, but conversations identified more universal challenges and best practices.
- 190 attendees from across many sectors.
- Key observation: for two days the discussions centered on implementing life cycle concepts vs. trying to understand them.

EPA's Perspectives on the Workshop

https://www.epa.gov/smm/advancing-resource-efficiency-supply-chain-observations-and-opportunities-action.

- Seven Critical Needs to Advance Resource Efficiency Broadly in the Supply Chain and Economy on a voluntary basis.
  - Collaboration and information exchange for resource efficiency innovation across the life cycle.
  - Public and private sector procurement practices that demand resource efficient products and services.
  - Mechanisms for sharing resource efficiency information and resources to a range of audiences.
  - Resource Efficiency Buy-in Within and Across Organizations.
  - Design with the "next life" of materials in mind – end of use is not the end of life.

EPA's Perspectives on the Workshop (cont.)

https://www.epa.gov/smm/advancing-resource-efficiency-supply-chain-observations-and-opportunities-action.

- Seven Critical Needs to Advance Resource Efficiency Broadly in the Supply Chain and Economy on a voluntary basis.
  - Life cycle thinking in design and decision-making to achieve resource efficiency.
  - Effective use of applied research and analysis to support innovation.

Next Steps

- The U.S. EPA continues to believe that a global network of interoperable databases is critical to mainstreaming life cycle thinking and life cycle-based decision-making. And we want to see life cycle thinking and life cycle-based decision-making mainstreamed. Access to data and ease of its use is fundamental to designing coordinated policy schemes that do not shift negative environmental burdens across the life cycle.

- We will continue to build on momentum around resource efficiency and advancing the use of life cycle thinking in design and decision-making.

- We will continue to collaborate, change and innovate as we embrace more integrated decision-making using the full range of policy instruments from the community to the global level.

Thank you!

Coleman.cheryl@epa.gov

Please visit:

www.epa.gov/smm

www.epa.gov/ORD

Follow us:

@EPAland

FB: Environmental Protection Agency