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# **Chemical Management Services: Part of Re-thinking Operations**

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# Unsustainable Trajectory

- Material use (and corresponding energy and water use) is rising rapidly, driven by population and economic growth
  - Humans have consumed more resources over the last 50 years than in all previous history.
  - The U.S. consumes 1/3 of world's total material consumption.
- The Earth's systems – air, water and land – struggle to withstand the many resulting environmental problems.
  - Half the world's tropical and temperate forests are gone.
  - 75% of marine fisheries are overfished or fished to capacity, and 90% of the predator fish are gone.
  - Habitat destruction has contributed to species disappearing a thousand times faster than normal, something not seen since the dinosaurs disappeared.
  - PBT chemicals are found throughout the food chain and in pristine areas.

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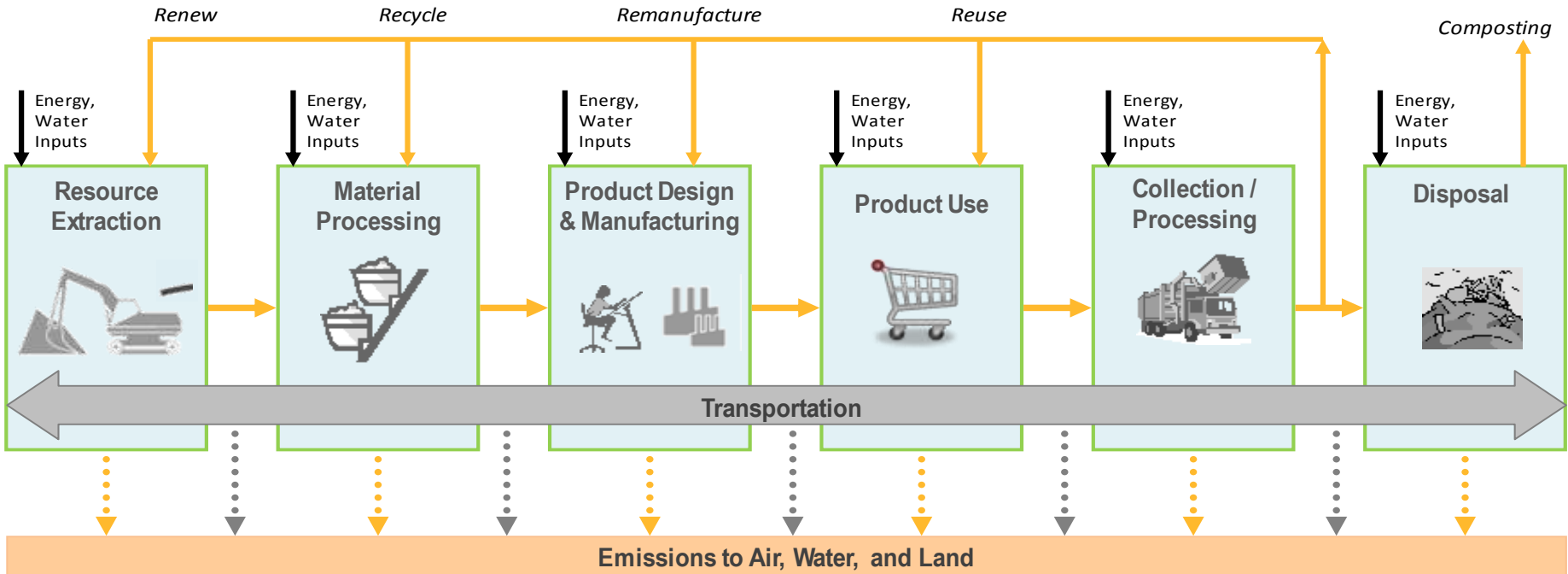
# Unsustainable Trajectory

- Growth projections for 2050 (from a 2000 baseline):
  - World population growth: 50%
  - Global economic growth (rise of the middle class): 500%
  - Global energy and materials use: 300%
- Resource demands will only increase as developing nations industrialize and increase their consumption, along with increased potential for future supply shortages.

# A Different Future is Needed

- EPA's "Sustainable Materials Management: The Road Ahead" report, the WBCSD's "Vision 2050" report, United Nations Sustainable Production and Consumption efforts have similar goals and conclusions:
  - "Business as usual" cannot continue; it does not bring us to sustainability or economic and social prosperity.
  - A systems approach is needed, and government needs to use its full range of policy instruments.
  - We must start now to achieve the necessary changes to minimize negative environmental impacts and unintended consequences of actions
  - We must fulfill our human needs and prosper while using less material, reducing toxics and recovering more. (SMM: The Road Ahead)
  - *"The radical changes highlighted in Vision 2050 demand a different perspective from business leaders, **requiring them to rethink how they operate** to stay on-track for a sustainable future."* (Samuel A. DiPiazza, PricewaterhouseCoopers)
- "Materials management" means targeting and coordinating changes throughout the life cycle of materials, products and services.
  - Which materials to use
  - How to use less (materials, energy, water)
  - Reduce hazardous inputs and outputs
  - Design for longer life, refurbishability, recyclability

# Life-Cycle Perspective



Source: U.S. Environmental Protection Agency

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# EPA's State Endorsed Report Recommends Governments:

- Begin managing materials and products on a life-cycle basis using present authorities.
  - Get current programs to deal with more of the life cycle and use market signals.
- Enhance capacity for the future
  - Improve data, tools, research, and internal/external processes.
- Accelerate public dialogue on materials management
  - Educate society on how materials management impacts the environment and the need to make changes.
  - Engage the business community to think across the life cycle, include more stages in the value chain.
  - Talk about using economic instruments to improve materials management.



# “Must haves” for 2020

Political

Leadership and legislation

Economic

New success measures and pricing to incorporate externalities

Awareness, incentives and access

Social

Efficiency, innovation and proliferation

Technological

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# Change is happening

- Green Products
  - The movement is moving toward the life-cycle and multi-attribute.
  - They focus on labels, standards, and verification.
  - Companies (e.g., Walmart, Procter & Gamble) turning to the life cycle understanding (this includes chemicals)
  - EPA engaging, just held listening session with stakeholders.
- Climate change creating an the understanding of direct and embedded environmental issues.
- Consumers becoming more interested in the embedded environmental and social issues of what they buy. (e.g., Good Guide as a response)
- “Green economy” the new mantra for security and prosperity
  - Nordic countries investigating how to gain wider adoption of “green” business models – new forms of delivering value to businesses and consumers.



# Federal Government: Lead by Example

- Federal Gov't Executive Order 13514
  - A new level of commitment by the Federal Government; establish an integrated strategy toward sustainability.
  - For chemicals, goals include:
    - Reduce/minimize toxic and hazardous chemicals acquired, used or disposed.
    - Implement integrated pest management and other appropriate landscaping management
    - Increase use of acceptable alternative chemicals and processes
    - Decrease use of chemicals that help achieve GHG targets
    - Reduce pollutants through source reduction.
  - Leverage procurement to foster markets for sustainable tech., environmentally preferable materials, products, services
  - Life cycle approaches
  - Need supply chain to be able to provide information so government can report progress – GSA exploring this.

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# CMS is Operational Re-thinking

- CMS superior to BAU, gets organizations moving down the sustainability path
  - Life-cycle approach
  - Supply chain relationship change
  - Decoupling material use from growth
- Both EPA's and WBCSD's reports refer to an increasing use of models that substitute services for products.
- EPA will also be engaging in dialogue's around wider market adoption of "green" business models.