Waste Management Basics

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An essential goal of waste management is to dispose of waste without contaminating water, soil, and air. Many wastes are disposed of safely in engineered landfills, by incineration, and in underground injection wells. All of these processes of waste management are monitored and regulated closely.[1] Waste management can also provide economic opportunity: generating energy from landfill gas; recycling to produce new materials from used plastic, paper, glass, or metal; or composting to produce rich soil from yard and food waste.

Why does waste management matter?

Safe waste management is essential in a world with increasing amounts of waste – from plastic trash to industrial waste water. Without proper management, solid and water wastes can have a number of impacts on public health and ecosystems.

How does geoscience help?

Geoscientists help design systems to dispose of waste safely – whether in the air, on the surface, or beneath the ground. They also help to locate safe sites for waste management and study the impacts of waste underground and at the surface.

References

1Environmental Protection Agency, "Summary of the Resource Conservation and Recovery Act", https://www.epa.gov/laws-regulations/summary-resource-conservation-and-recovery-act, accessed May 18, 2017

Learn More

Introductory Resources

- Learn about Waste (Website), *Environmental Protection Agency*
  Web articles on resource conservation, hazardous waste, and non-hazardous waste.

- Injection Wells (Webpage), *Environmental Protection Agency*
  Brief web article in question-answer format on what underground injection wells are used for, what they are injected with, how wells are categorized and regulated, and links to regulators in each state.

- The Science of Waste Management (Fact Sheet - PDF), *Waste Management, Inc.*
  A fact sheet on the science of landfill management and the use of methane gas, a by-product of trash decomposition, as an energy source.

Resources for Educators

- Education Resources Network, *AGI's Center for Geoscience & Society*
  Search for waste management resources in: Professional Resources, Organizations, Curricula & Instruction, Outreach Programs

- NGSS Performance Expectations, *Next Generation Science Standards*
  K-ESS3-3, 5-ESS3-1, MS-ESS3-3, MS-ESS3-4, HS-ESS3-3, HS-ESS3-4

- NGSS Disciplinary Core Ideas, *Next Generation Science Standards*
  ESS3.C

Frequently Asked Questions

What is biomining?
American Geosciences Institute
What is produced water?
American Geosciences Institute
How does recycling save energy?
American Geosciences Institute
What are underground injection wells used for?
American Geosciences Institute

Do you have a question that's not listed here? Search all FAQs

Maps & Visualizations

Interactive map of hazardous waste cleanups in the United States
U.S. Environmental Protection Agency

The U.S. Environmental Protection Agency (EPA) provides an interactive map of hazardous waste cleanups across the United States. The "Cleanups in My Community" map provides a huge amount of information on thousands of cleanups of many kinds. For every cleanup, users can access and download reports...

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