



RECYCLING & WASTE MANAGEMENT

Rethinking What We Throw Away

A Lesson in Environmental Science



2 Why Waste Management Matters

Every item we throw away has to go somewhere — how we handle it shapes our environment, health, and economy.



Environmental Protection

Poorly managed waste pollutes soil, waterways, and air, and releases greenhouse gases as it decomposes.



Public Health

Uncollected or mismanaged waste attracts pests and spreads disease in communities.



Resource Conservation

Materials sent to landfill are materials we must extract and manufacture all over again.

3 What Is Waste Management?

“Waste management is the collection, transport, processing, and disposal of waste in ways that protect people and the environment.”

— A working definition used by environmental scientists

- It covers everything from a household trash bin to industrial disposal systems.
- Good systems separate reusable and recyclable materials from true waste.
- The goal is to minimize what ends up in landfills or the environment.



A System, Not a Bin

From your curbside pickup to a sorting facility to a new product, waste management is a whole chain of decisions.

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Types of Waste



Household & Municipal

Everyday trash from homes, offices, and small businesses.



Industrial

By-products from manufacturing and production processes.



Hazardous

Materials that are toxic, flammable, or corrosive, needing special handling.



Organic

Food scraps and yard waste that can be composted.



Electronic (E-Waste)

Old phones, computers, and appliances containing reusable materials.

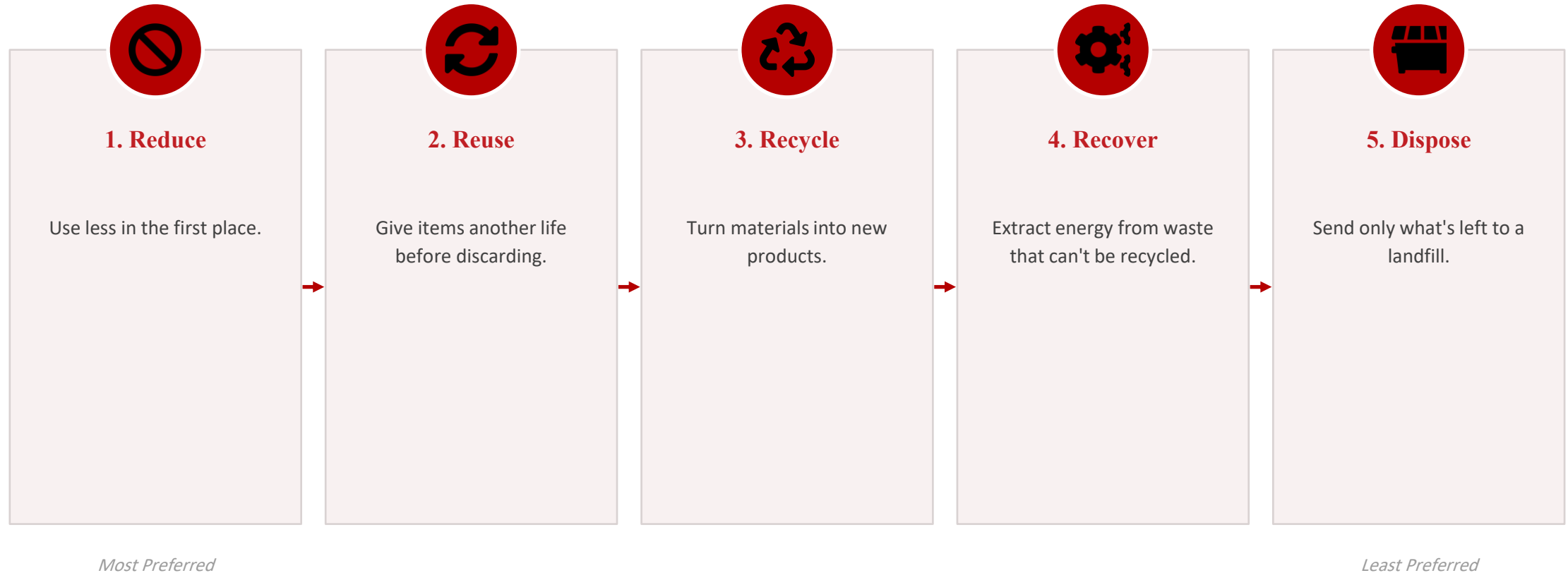


Construction & Demolition

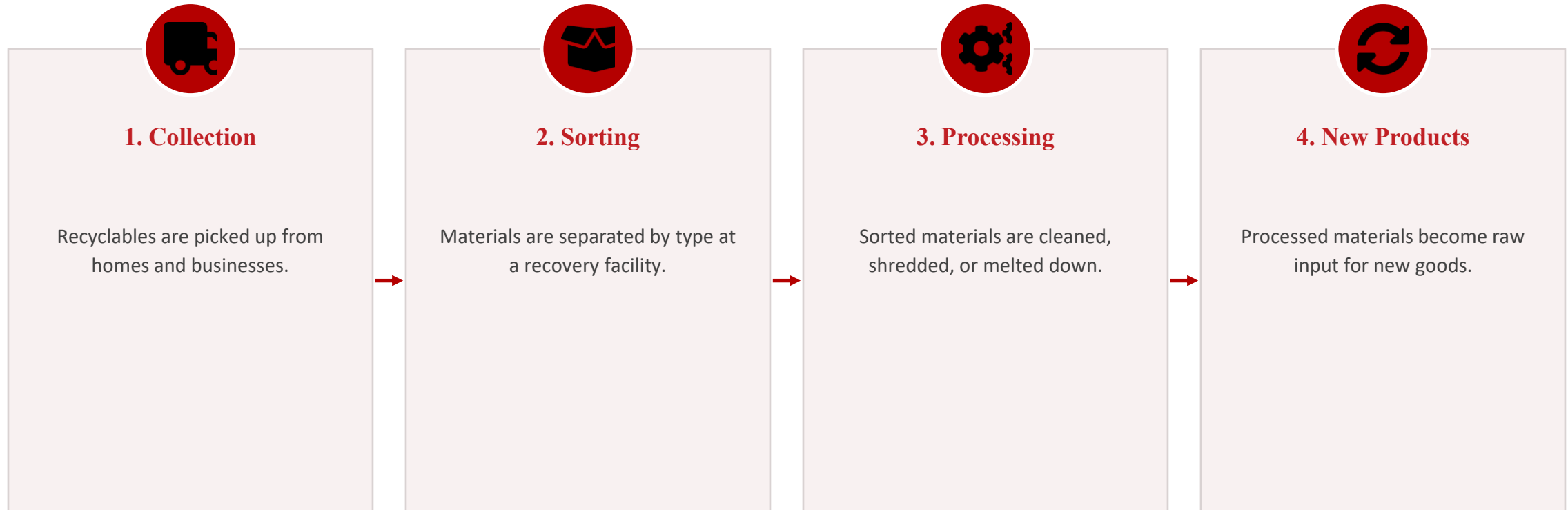
Concrete, wood, and metal left over from building projects.

5 The Waste Management Hierarchy

A guide to prioritizing the most effective ways to deal with waste, from most to least preferred.



6 How Recycling Works



What Can Be Recycled?



Paper & Cardboard

Newspapers, boxes, and office paper can be pulped and remade repeatedly.



Glass

Bottles and jars can be melted down and reused indefinitely without losing quality.



Plastic

Many plastics can be shredded and remolded, though not all types are equally recyclable.



Metal

Aluminum cans and steel can be melted and reformed with minimal loss of material.



PART TWO

Reducing Our Impact

Weighing the benefits of recycling against the challenges still ahead.

9 Benefits of Recycling



Conserves Natural Resources

Reusing materials means fewer trees cut, less ore mined, and less oil drilled.



Saves Energy

Making products from recycled materials usually takes less energy than starting from scratch.



Reduces Pollution & Landfill Use

Diverting waste from landfills cuts methane emissions and conserves land.

10 Challenges in Waste Management



Contamination

Food residue or mixed materials can spoil an entire batch of recyclables.



Limited Infrastructure

Many regions lack the facilities needed to sort and process waste efficiently.



Public Participation

Recycling only works well when households sort and dispose of items correctly.

11 Landfills vs. Recycling



Landfills

- Waste is buried and left to decompose slowly, sometimes for centuries.
- Decomposing waste releases methane, a potent greenhouse gas.
- Land used for landfills cannot easily be reused for other purposes.



Recycling

- Materials are given a new life instead of being buried.
- Manufacturing from recycled input generally uses less energy.
- Requires sorting, processing, and markets for recycled materials to work well.

12 Global Waste Facts

**~2 Billion
Tonnes**

of municipal solid waste generated
worldwide every year

~13.5%

of the world's waste is currently
recycled

1 in 3

tonnes of waste worldwide is not
managed safely

+70%

projected growth in global waste
generation by 2050

Based on World Bank estimates. Without stronger reduction and recycling efforts, the amount of waste we generate is expected to keep climbing.

13 What Can You Do?



Reduce & Reuse First

Choose reusable bags, bottles, and containers before anything else.



Sort & Recycle Correctly

Learn your local rules so recyclables don't get contaminated or rejected.



Compost Organic Waste

Turn food scraps and yard waste into compost instead of landfill trash.



Reduce. Reuse. Recycle.

*What we do with our waste today shapes the resources
available to everyone tomorrow.*

Thank You