



Waste Topic Overview

Solid waste management affects every single person in the world, whether individuals are managing their own waste or governments are providing waste management services to their citizens. As nations and cities urbanize, develop economically, and grow in terms of population, the World Bank estimates that waste generation will increase from [2.24 billion metric tons in 2020 to 3.88 billion metric tons in 2050](#). [At least 33% of today's waste is mismanaged globally](#).

There are many different types of waste that are encompassed within this topic, from managing trash on an individual or household level to looking at large-scale industrial and mining waste.

When we mismanage waste, it has health consequences through water, soil, and air contamination. Hazardous waste or unsafe waste treatment, such as open dumping or burning, can directly harm waste workers and neighboring communities. Vulnerable groups such as children are at increased risk of poor health outcomes. Inadequate waste collection also leads to environmental and marine pollution.

Because mismanagement of waste disproportionately affects those in low-income areas, tackling this problem is central to achieving greater environmental equity throughout the world.

Possible Waste Subtopics

Waste is a broad topic. Rather than taking on the entire topic, consider focusing on just one part of it (a subtopic). We've put together a list of subtopic angles you could take, and linked to a variety of credible sources, below. But remember, there are many other waste subtopics, and tons of other sources, so no need to limit yourself to what's included here!

Click on the colored tiles to navigate to resources about each subtopic.



Managing Trash

Around the world, waste generation rates are rising. In 2020, over 2 billion metric tons of solid waste was generated globally, amounting to a footprint of 1.7 pounds per person per day. With rapid population growth and urbanization, annual waste generation is expected to increase by 73% from 2020 levels to 3.9 billion metric tons in 2050. Compared to those in more developed nations, residents in less developed countries, especially the urban poor, are more severely impacted by unsustainably managed waste.

- Waste collection is a critical step in managing waste, yet rates vary largely by income level. Middle- and high-income countries provide nearly universal waste collection, while lower-income countries often collect less than half of the municipal waste, and even less rural waste. (Source: [World Bank](#))
- Half of the plastic we produce each year comes from items that are used once and then thrown away. (Source: [National Resource Defense Council](#))
- The COVID-19 pandemic led to an abrupt collapse of waste management chains in many countries. (Source: [Science](#))
- For years, wealthy countries have been exporting their waste to less wealthy countries. But more recently, many countries have stopped accepting imported waste. (Source: [Bloomberg](#))
- Many cities are instituting policies to decrease their municipal waste production and improve how it is managed. (Source: [Earth.Org](#))

Sanitation

Functioning sewage systems are needed worldwide. Without them, community water sources become contaminated and unusable, which leads to the transmission of diseases such as cholera and dysentery, as well as typhoid, intestinal worm infections, and polio. But effective waste management is expensive, often comprising 20–50% of municipal budgets. Operating this essential municipal service requires integrated systems that are efficient, sustainable, and socially supported.

- 1.7 billion people around the world do not have access to basic sanitation services like toilets. (Source: [World Health Organization](#))
- Around the world, many rural communities still practice open defecation. (Source: [United Nations News](#))
- Many urban areas struggle with proper sanitation management, even if toilets are prevalent. (Source: [Global Citizen](#))
- Wastewater adds nitrogen to coastal waters, contributing significantly to harmful algal blooms, eutrophication, and ocean dead zones. (Source: [Mongabay](#))
- Today, around 80% of all wastewater is discharged into the world's waterways every day, where it creates health, environmental, and climate-related hazards. (Source: [International Water Association](#))

Responsible Consumption & Production

Every act of consumption carries with it an act of waste. There is always a small or large part of any product that needs to be thrown away when we use it (packaging or a container, leftovers, or even the entire product if it's single use). But as the population grows, we need to think about how much waste we are producing as a planet, and how we could approach agriculture, manufacturing, and growth in a more sustainable way.

- In 2016, more than 2 billion metric tons of waste was generated globally, and more than half of that was from food and plastic. (Source: [World Bank](#))
- Sustainable consumption and production can alleviate poverty and contribute to the transition towards low-carbon and green economies. (Source: [United Nations](#))
- Roughly one-third of all food produced each year is wasted. (Source: [Grist](#))
- Should the global population reach 9.6 billion by 2050, we would require the equivalent of almost three planets to provide the natural resources needed to sustain current lifestyles. (Source: [International Institute for Sustainable Development](#))
- People are consuming less responsibly today than they were five years ago. (Source: [World Economic Forum](#))

Electronic Waste (E-Waste)

E-waste, or [electronic waste](#), is one of the fastest-growing waste streams on the planet. Already, we produce more than 50 million tons each year, and that number is only set to increase as electronics become more accessible worldwide. Globally, only 20% of e-waste is recycled, and the remaining e-waste ends up in landfills, burned, or illegally traded. Electronics contain many chemicals that are harmful to people and the environment, so when their disposal is mishandled, these chemicals end up in the soil, water, and air. To make matters worse, electronic waste is sometimes illegally exported to countries that don't have laws on handling and disposing of it. Once there, it's often dumped irresponsibly.

- Children often handle e-waste in less developed countries because of their small hands, and it can have drastic health effects. (Source: [World Health Organization](#))
- E-waste can be toxic, is not biodegradable, and accumulates in the soil, air, water, and living things. (Source: [Geneva Environment Network](#))

- E-waste is the fastest growing waste stream in the U.S., fueled by the combination of more people buying electronic products, products having shorter life cycles, and fewer options for repair. (Source: [The Conversation](#))
- Many more developed countries export their e-waste, despite international laws forbidding this practice. (Source: [Berkeley Political Review](#))

Health Implications

Improper waste management can have serious, and sometimes fatal, health consequences for people who interact with the waste disposal process or live nearby. Open and unsanitary landfills contaminate drinking water and can cause infections and transmit diseases like cholera and dysentery. The dispersal of debris pollutes ecosystems and dangerous substances from electronic waste or industrial garbage puts a strain on the health of urban dwellers and the environment.

- As many as 12.9 million women work in the informal waste sector, which potentially exposes them to toxic e-waste and puts them and their unborn children at risk. (Source: [World Health Organization](#))
- Burning waste creates and releases harmful chemicals and pollutants that can cause heart disease, lung disease, neurological issues, and cancer. (Source: [National Resource Defense Council](#))
- Municipal waste frequently goes uncollected in poorer countries, and its buildup fuels the spread of disease. (Source: [The Guardian](#))
- Over 80% of the world's wastewater — and over 95% in some less developed countries — is released into the environment without treatment, leading to 1.7 million deaths annually. (Source: [United Nations Environmental Programme](#))

Environmental Justice

[Environmental justice](#) is a global movement that recognizes that environmental, health, and racial and social justice issues are connected. Generally, the way that we manage waste — or don't manage waste — has severe health impacts on communities located near incinerators and polluting facilities. And these communities are disproportionately Black, Indigenous, people of color, and ethnic minorities. Emissions of harmful particulate matter, mercury, and lead from incinerators lead to higher rates of asthma, respiratory disease, and cardiovascular disease. Burning and landfilling waste, particularly organic material, compounds climate emissions from smokestacks and landfills. Water contamination from

landfill leaching and runoff impacts local waterways, water sources, and community recreational areas.

- Communities of color are disproportionately burdened with health hazards through policies and practices that force them to live in proximity to sources of toxic waste. (Source: [World Economic Forum](#))
- The overwhelming majority of incinerators, factories, landfills, and burn facilities are located near low-income communities, communities of color, and marginalized communities. (Source: [Zero Waste Europe](#))
- Emissions from burning waste worsen environmental inequalities, create financial risks for host communities, and reduce incentives to adopt more sustainable waste practices. (Source: [PBS NewsHour](#))
- In the U.S., the burden of solid waste disposal impacts low-income, non-white communities in a disproportionate manner. (Source: [Population Education](#))