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The State of Recycling In North Carolina

U.S. PIRG
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ZERO WASTE

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Introduction

You toss your plastic water bottle in a recycling bin after coming home from a trip to the beach, hoping the plastic from that bottle will be in next year's plastic bottle, right? It most likely will not. Currently, plastic can only be re-manufactured a limited number of times, at best into a lower quality product because it degrades each time it is recycled.¹ The value of recycled plastic may be low enough that your bottle is instead burned in an incinerator or dumped into a landfill. A few years ago, that plastic might have been sold to China or another foreign nation. However, over the last few years, countries across the Pacific are putting restrictions on importing U.S. waste. Without these export markets, the U.S. recycling industry is in serious trouble, as exemplified by your plastic bottle's likely journey to a landfill or incinerator. Of course, using a reusable water bottle would have avoided this issue, and for that reason, reduction and reuse strategies are preferable to recycling, even when recycling works.

The State of Recycling in North Carolina

Across the United States, our recycling system is faltering. Local governments from Jackson, Mississippi to Sierra Vista, Arizona are ending their curbside recycling programs. Many other municipalities have reduced the list of materials they will accept.^{2 3} Even when recycling does end up in a blue bin, it may be immediately landfilled or burned --until earlier this year roughly half of Philadelphia's collected recycling was being sent to incinerators.⁴ These are not isolated incidents but are increasingly our new normal. What went wrong? Why are we moving backwards on recycling, an important tool for fighting environmental pollution and climate change? And why is plastic to blame?

The collapse of international recycling markets

For decades, one of the United States' largest exports to East Asia by weight was waste.⁵ Rapid economic growth, high demand for materials and cheap labor made it economical for these Asian countries to sort through U.S. recyclables that were often commingled with low-value or unrecyclable materials.⁶ And from the U.S. perspective, exporting waste was easier than handling it domestically, so the U.S. sent its waste overseas in massive amounts and counted it as recycled.⁷ This arrangement was far from perfect, however. Once these countries had sorted out the valuable materials from the U.S.' recyclables, they would throw out or incinerate the rest—practices detrimental to both public health and the environment.^{8 9}

Starting in early 2018, East Asian governments began banning, limiting or more heavily regulating U.S. recyclable exports.¹⁰ The era of globalized waste trade came to a sudden end and the U.S. was left to deal with its flawed recycling system.

Ongoing structural issues

While many commentators have blamed East Asian import restrictions for our current struggles, the U.S. is at fault for becoming dependent on exporting its recyclables. The United States failed to curb the rise of plastic, failed to build domestic demand for recycled material, and failed to ensure that product designers considered the end life of their products.

Recycled materials lack markets

Recycling depends on the idea that the cost of collecting and sorting certain materials is rational because somebody will want to buy them to make something else. In reality, many plastics have no such market. Without domestic manufacturers creating more goods made from recycled material, we cannot fuel a functional recycling system. If we want to improve our recycling system, we need to use better materials and create a market that is fueled and funded in part by the manufacturers themselves.

Producers aren't held responsible

Currently, most product designers are under no obligation to consider how their products will be disposed of at the end of their useful life. This leads to the creation of unrecyclable products. For example, some flexible drink packaging combines plastic and metal and the two materials are too difficult to separate to be recycled.¹¹ Other products, like compostable plastic containers, may be technically recyclable or compostable, but they are often incompatible with most recycling and composting programs.¹²

Consumers lack opportunities to recycle and compost

Many municipalities lack curbside recycling, while in areas where it is provided, multi-unit apartments are often left out.¹³ As a result of the recent restrictions on recycling exports, additional municipalities have ended their recycling programs. Access to curbside compost is even worse. A 2017 study found that only 326 municipalities out of more than 19,000 had curbside pickup of food waste, less than 2%.¹⁴ For these activities to increase, recycling and composting must be as easy as tossing things into the trash.

Plastic production has increased

For materials like metal and cardboard, the recycling model has historically worked well. There is a healthy market for used cardboard and aluminum, which reduces the environmental impact of extracting and manufacturing new so-called “virgin” materials.¹⁵

Plastic is different. Plastic can only be recycled a few times, because it breaks down each time it's recycled. Recycling plastic is also an expensive and complicated process.¹⁶ As more non-recycled plastic has entered our waste stream, our recycling system has struggled to fund

itself. Over the last three decades, the amount of plastic entering our recycling system has increased dramatically. In 1980, 20,000 tons of plastic was recycled. In 2015, that number skyrocketed to more than 3 million tons. And yet, that same year, more than 5 million tons of plastic was burned, while another 26 million tons was landfilled.¹⁷

Without a market, 8 million tons of plastic waste will continue to find its way into the ocean every year.¹⁸ Ultimately, the best way to handle our plastic waste problem is to dramatically reduce the amount of plastic being produced in the first place.

Consequences of our weak recycling system

In the absence of an effective recycling system, most U.S. waste is landfilled or incinerated instead of recycled, necessitating that new materials be extracted and manufactured.

Trash incinerators

In the wake of recycling export restrictions, many municipalities have begun incinerating their recycling streams instead, a process often termed “waste-to-energy.” While touted by supporters as a “renewable” energy source, incineration is extremely harmful to both the environment and local communities. For every metric ton of plastic burned in an incinerator, 1,980 pounds of carbon dioxide (CO₂) equivalent are released—nearly 15 times more than a ton of plastic waste that is landfilled.¹⁹

The public health effects of incineration are also grave. Emissions include carcinogens and neurotoxins, as well as contaminants that can cause or aggravate respiratory problems, particularly among children, the elderly, and those with pre-existing respiratory problems.²⁰

Landfills

Landfills are the most common way of getting rid of waste and, they also pose environmental and public health challenges. As waste, especially organic matter, breaks down in landfills, it generates the greenhouse gasses CO₂ and methane. Twenty percent of all human-caused methane, a greenhouse gas 84-87 times more potent than CO₂ over a 20-year period, has come from landfills.^{21 22} In addition, landfills can leak fluid that contains a “wide variety of hazardous, toxic or carcinogenic chemical contaminants” into groundwater.”²³

The need for more raw materials

When materials are incinerated or landfilled, more virgin materials are needed to create new products. Using virgin materials often entails significant environmental degradation. For example, extracting and transporting natural gas in the U.S. for virgin plastic production emits an estimated 9.5–10.5 million metric tons of CO₂ equivalent per year.²⁴ Much of this natural gas also comes from fracking, which uses around 3 million gallons of water per well and has been shown to pollute groundwater.²⁵

State findings

In fiscal year (FY) 2016-2017, North Carolina landfilled over 9.7 million tons of waste* and recovered 1.7 million tons for a low recovery rate of 14.9%.²⁶ Since 2017, it appears that North Carolina's recycling system has declined. In response to international waste trade restrictions, municipalities across the state have scaled back the list of recyclable materials they will accept, including glass and some plastics.²⁷

North Carolina's recycling rate may be low, but the state has previous success in reducing the overall amount of waste it generates - partly thanks to local government programs that have since declined. In FY 2016-2017, North Carolina generated 5.5 pounds of trash per resident each day, a full 2 pounds less than in FY 2005-2006. However, most of that waste reduction occurred between 2008 and 2010 - waste generation then increased during FY 2015-2016. This could potentially be connected to the number of local government waste reduction and reuse programs falling from 108 in 2015 to 93 in 2017.²⁸

* Coal ash is excluded from all figures mentioned in this report. Construction and demolition debris could not be excluded, however.

Solutions

Reduce, reuse, recycle.

It's important to remember that recycling is only our third best option. While recycling reduces our need to produce from virgin materials, it is also a manufacturing process that requires the use of water, energy, and other natural resources. For that reason, we need to redesign our systems to reduce and reuse, first and foremost. The following policies can help us towards reaching our goals:

Reduce	Reuse	Recycle
Ban unnecessary single use plastics such as plastic bags and polystyrene foam (commonly called Styrofoam) food containers.	Pass Right to Repair Laws, giving consumers and independent repair shops the ability to fix their stuff when it breaks.	Pass Extended Producer Responsibility Laws that make manufacturer responsible for dealing with the waste their products will become.
Require unnecessary single-use plastic accessories such as straws, utensils, and condiment packets, to be given only upon customer request	Encourage the use of reusable bags and bottles through customer rebates	Expand curbside recycling and composting efforts.
Oppose the creation of new plastic production infrastructure.	Require sit down restaurants to use reusable plates and foodware.	Mandate new products contain a certain percentage of recycled material.
Enact "Pay As You Throw" programs that charge consumers less if they throw out less trash.		Ban food waste from landfills and encourage the creation of a comprehensive composting system.

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