Plastic Pollution: Reusing, Recycling, and Reducing my Plastic Personal Use

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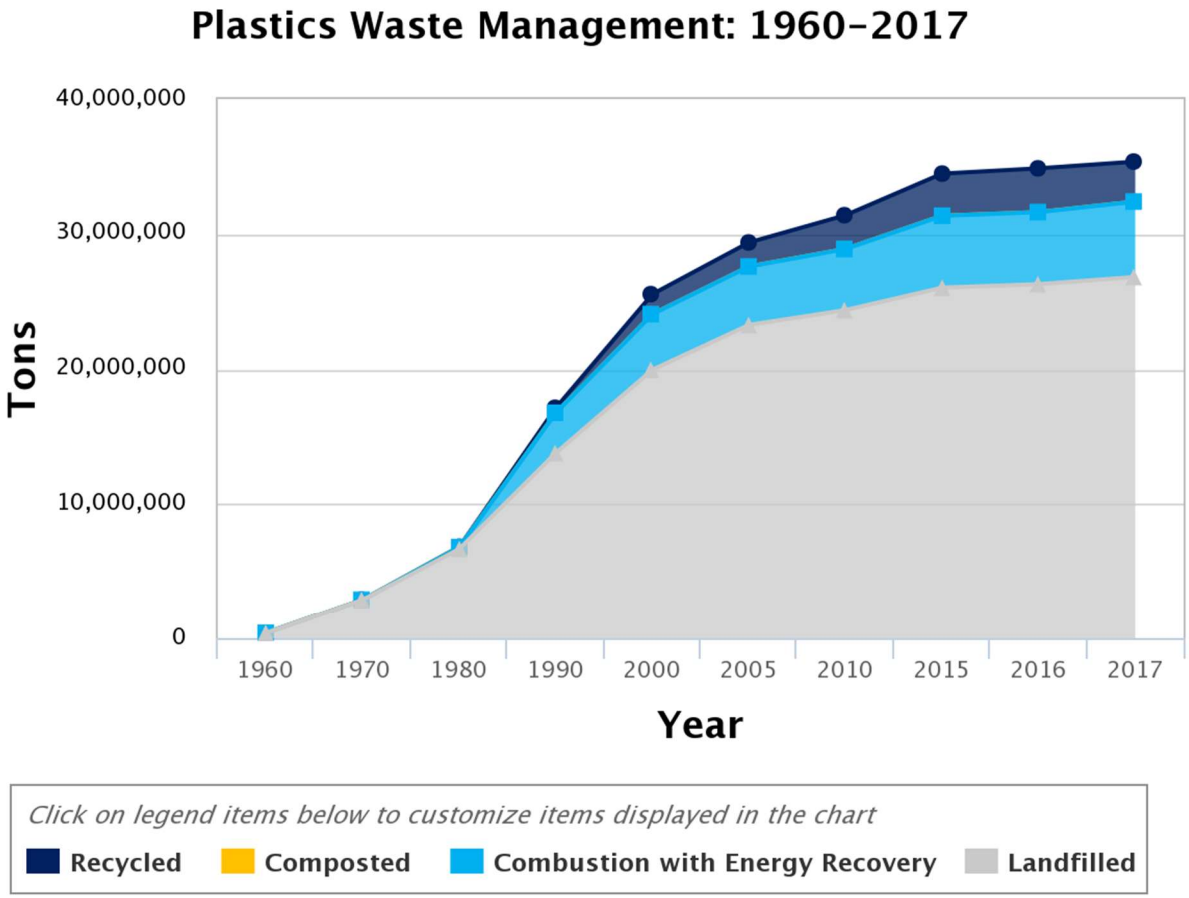
There are many real-life threats we are facing due to plastic pollution. According to the Environmental Protection Agency “While plastics are found in all major MSW categories, the containers and packaging category had the most plastic tonnage at over 14 million tons in 2017.” (EPA, 2019). As a society we are burying the environment in plastic and letting it release it toxicity into the Earth. The figures for plastic pollution were astonishing and I am not sure how we are fitting all our plastic waste on this planet with us. Below is a chart depicting the types of disposal for plastic over the years. Until about 1980 we did not do anything with our plastic waste beside toss it into a landfill. All of the chemicals being released and combining with others in the landfill creates methane gas. As we all know methane gas is extremely dangerous to the environment because it depletes the ozone. Slowly plastic started being used as a source of energy as heat, electricity, or fuel. The main way to do that is combustion which melts down the plastic and produces gasses. Those gasses are more than likely harmful to the environment. Only at the turn of the century do we see many people recycling. It is becoming more widely used however it does not seem to increasing quickly. The landfill is still the main place where plastic resides even today. One aspect in particular that was really disappointing is nobody is composing their food scraps. We see that compost is labeled as yellow and no yellow is evident in the graph. Composting food scraps really does not take much time or money. I think the biggest drawback is the smell and I got great tip when composting in an apartment like myself. If there is not an outdoor space for the bin, keep your compost in the freezer. This way the scraps are frozen and do not decompose until it makes it to a local compost bin. Opportunities like composting and recycling need to be taken advantage of more in the coming years if we want to reduce

plastic in the landfills. The urgency for change inspired me to find ways to reduce my own use of plastic.



Plastic has been around for a surprisingly long time. According to the Science Institute. (n.d.), it was invented in 1869 by John Wesley Hyatt in the hopes to create a substitution for ivory. The resource of ivory from elephants became scarce due to over-hunting and the government offered to pay for a subtitle. The idea of plastic was inspired by nature in the form of cellulose found in the plant cell wall. Cellulose was expensive so copying the form and creating synthetic polymers made the plastics we know today. Once Hyatt realized that plastic can be molded into a variety of shapes the discovery became monumental. Plastic could mimic ivory and many more items; the

possibilities were endless. Because the synthetic polymers were so inexpensive to make and there was a plethora of uses the demand grew. The first time in history America sees a widespread use of plastic was World War II with many needs for plastic products. For example, “Nylon, invented by Wallace Carothers in 1935 as a synthetic silk, was used during the war for parachutes, ropes, body armor, helmet liners, and more.” (Science History Institute, n.d.). This is when using plastic and manufacturing plastic goods became a national necessity. After seeing the benefits of plastic aid, them in the war many people looked at plastic as the perfect product. It was cheaper and safer than glass, so the surge of manufacturing plastic began, and America was producing three times more than previously.

The outlook on plastic was seen to be promising and the industry would continue to grow rapidly. People historically predicted that the use of plastic would make it way into the medical industry. The prediction was based off of the unique ways’ plastic was being used for medical purposes. Agassiz explains “An even more startling development, perhaps, is the plastic resin, "Portex," perfected by an English scientist. This plastic is already being used in replacing noses, cheeks, joints and tissues.” (Agassiz. 1944). At this time there were many men who were disfigured and injuried from the war. The disfigurement was not socially accepted, and many individuals would not want to be seen in public. The plastic replacements made it easier to cope with the scars and because a positive contribution to the medical industry. With new discoveries to use plastic happening constantly the production doubled year by year. This means the plastic waste also doubled year by year as time went on. The mentality was focused on production and industry, to have the right gadget for each job that needed to be done.

By doing so it was considered advancing with technology. Although, plastic piled up in each home and was discarded in the trash that eventually lead to a landfill.

Nobody had thought about plastic waste or its effects until about 100 years after its invention “In the 1960s a worrying trend became apparent. Seabirds across the globe were dying from bits of plastic clogging up their digestive system.” (Castillo, 2018). This is when America began to see the effects of plastic waste and shortly after plastic debris was found in the ocean. Fisher men began catching plastic in their nets. As investigation on plastic waste continued scientists made the discovery that plastic waste produces toxic chemicals in the late 60s. At this point plastic waste was identified as an issue yet nothing was done to prevent it. The federal nor local governments acted upon the disposal of plastic, instead the manufactures presented a solution. “In the 1980s the plastics industry led an influential drive encouraging municipalities to collect and process recyclable materials as part of their waste-management systems.” (Science History Institute, n.d.). In other words, the plastics were reusable, and this recommendation pushed the recycling system we have today. I found it astonishing to see that recycling is not supported by federal law and is simply a funded program.

In day to day life I use three plastic products everyday water bottles, plastic bags, and food packaging. “U.S. landfills are overflowing with 2 million tons of discarded water bottles alone.” (The Water Project, n.d). To combat the use of water bottles, I started using a water filtering system. The Britta filter water pitcher is a reusable and cleans tap water for drinking. The filter cartridge itself can last for a few months and come in different sizes. This is a long-term solution; many people would be concerned with the cost but it is not that expensive compared to the savings. The pitcher alone averages

around forty dollars and the filters cartridge approximately four dollars each. So, to start it would be around one hundred dollars for a year supply, compared to buying packages of water bottles very trip to the grocery store. Also, I have switched to using my insulated to-go bottle for hot and cold drinks. I work at a community college and they have upgraded water fountains to filter water on tap. This way I can get through the day without the need of a water bottle. Lastly, creating water awareness at the home will help my awareness with using water. For example, reusing the leftover water from watering my plant or getting an eco-friendly faucet head to control the water pressure when washing dishes. However, eliminating the use of cleaning supplies that come in plastic bottles is difficult. I would have to use all eco-friendly products made from recycled material or made at home. Making cleaning supplies at home can be more time consuming but saves money. Using ingredients, I already have like water and rubbing alcohol to make glass cleaner. Or dish soap, vinegar, and water to make hardwood cleaners. To finish it off I would to reuse my current chemical cleaning containers or reuse just the spray nozzle on a bigger bottle.

"Every year, around 500 billion plastic bags are used worldwide. 500,000,000,000." (Jacobsen, n.d.). For this reason, I have made the recent change to cloth shopping bags that are made of recycled materials when grocery shopping. It can be challenging when buying goods because using cloth bags is unconventional, but more stores are switching to other materials. Currently, I have a cabinet full of plastic bags that I use as trash bags until I run out. My goal would be to use biodegradable trash bags and eventually have no need for plastic bags. Biodegradable bags come in all sizes and they are affordable only cost a little more than regular bags. I came across a company

that creates trash bags from potato starch called If You Care. They are all natural, animal cruelty free, and GMO free. There are better products and companies to serve the need for a plastic bag, yet we still face terrible plastic bag pollution. We simply use them to carry items, it is not essential whatsoever. If we created such a mess, we are responsible for finding a way to dispose of that bags that will not harm the environment.

Reducing the amount of plastic from food and goods is quite challenging. Almost all food comes in plastic and purchasing food with plastic is inevitable. There is a local farmers market that I visited once and they had a variety of fruit and vegetables. It is much more satisfying to be able to pick out your own vegetables and purchase some flowers on the way out. Also, I know they have grocery stores where you can buy food in bulk. The idea is each customer brings their own containers and get them weighted at the front. Next, the person goes shopping to fill up the containers with food of their choice. Finally, the containers get weighed again at checkout and the customer is charged for the food per pound. This sounds really intriguing and I'd love to visit and see if it is what I expect. I found a bulk grocery store near me thanks to a website called Litterless. This website lets you research each state in the United States for businesses that are zero waste and eco-friendly. This approach is cheaper but going to the grocery store often because fresh produce go bad quickly is unfortunate. However, eating fresh fruits and vegetables are good for the human body so in this case, the pros outweigh the cons.

One element that I found astonishing was the lack of feral law to support recycling. I can understand that one overarching law is not realistic in regards to recycling because each state's issues vary. Although, I think it would be wise of the Federal government to

at least require each state to provide an Environmental Impact Statement or Assessment. This way we can analyze the impacts of plastic waste state-by-state to find common denominators and their roots of existence. For example, if the state of Massachusetts finds that more than half of garbage is plastic waste then the state will have to implement at least a three-part recycling system. Specifically, every place with public trash should provide containers for plastic waste, paper waste, and then a container for waste that does not fit in any category. A college in Boston, Massachusetts has implemented a similar system. “Massachusetts College of Art and Design set up a successful front and back-of-the-house compost collection program that diverts about 80 tons of food waste annually.” (Recycling Works, n.d.). This link provides the case study done to combat waste in the college and the huge strides it is making. I am aware that implementing a project such as this one is costly and in order to push this regime funding needs to be available. The first challenge would be to push local government to require an Environmental Impact Statements. Every city funds their public schools so funding would be constrained. Although, the schools themselves could raise money by a sports game or raffle night. To find funding would be a timely process but worth the while. Alternatives for goods packaging is probably the hardest of all the topics. There is no way to control how the goods are made and sold. One small way to reduce plastic packing is to shop instore. I personally prefer to shop instore because I like to see what I getting before buying it. It is difficult because more and more people are shopping online which decreases the need for shopping store. Unfortunately, many stores have been closing because of the lack of business. Other that that, companies and the overall government needs to be more aware of the coming issue. We need to focus on

funding and implementation to create ways to fight plastic packaging. As of now all the consumer can do is try to repurpose the plastic or toss it in the recycling.

A global issue we face due to the use of plastic is the waste in the ocean. The ocean covers more than half of the Earth and it is becoming more dangerous for marine life. “Marine wildlife is impacted by plastic pollution through entanglement, ingestion, bioaccumulation, and changes to the integrity and functioning of habitats.” (Vegter, Barletta, Beck, et al., 2017). Furthermore, there is a threat to smaller organisms in the ocean as well due to micro plastics. Micro plastics are extremely small particle of larger pieces of plastics broken down in the water. There is so much micro plastics in the ocean that the EPA states “It is estimated that approximately 90% of the plastics in the pelagic marine environment are microplastics (less than 5 mm in diameter).” (EPA, 2017). All marine life in the food chain is affected by plastic waste which is why this issue has such urgency. In addition, the threat of losing many marine species negatively affects our economy. Fishermen and fishing industry have taken a hit to business because of the lack of fish. The pollution is making species endangered for example, the blue fin tuna in the Atlantic Ocean.

When it comes to plastic waste Asian countries specifically China is the top contributor. China does not have the advanced waste treatment facilities like America does therefore, I concluded their waste disposal system wasn’t adept to managing the amount of plastic waste China produces. However, not all of China’s plastic waste is produced by their people alone. “China has accepted nearly half of the world’s nonindustrial plastic waste imports – approximately 106 Tg of plastic waste – over the past 25 years.” (Wang et al., 2020). I asked myself why China would want plastic waste

and it comes down to a few aspects. Firstly, the country is part of the global plastic waste trade networks (GPWTNs) which is the network that supports the global waste trade. Being a part of this network builds relationships with other countries and China's economy benefits from waste trade. However, in the past recent years China is trying to become less polluted and banned the import of non-industrial plastics. This caused absolute chaos with countries relationships and because the GPWTN has specific routes of waste trade. I can understand where China is coming from because they do not have the technology to deal with amount of plastic waste and is looking to reevaluate their processes. It seems that plastic waste handling is going through another change as we continue to learn about the immense effects' plastic has on the environment.

Overall keeping an open mind to alternatives to plastic and its disposal is key. I suggest everyone evaluate how much plastic is in their trash and how often they recycle. I thought our recycling amount was much higher as a whole and was really surprised to learn most people put plastic in the trash still. With that being said I strongly believe that local governments need to crack down on recycling per household. Here in Massachusetts were I'm from there is a fee if you put plastic bags in your recycling because we are now supposed to return it to the grocery store instead. Although, this seems flawed because they do not check if there are plastic bags in the trash bin nor acknowledged the fact that the trash bags are plastic bags. In the coming years I feel we need to lower the amount of plastic in the landfill.

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