Week 5 Project Draft: Harmful Plastics Contribute to Solid Waste

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NAT 215\_200 Environmental Science

August 6th, 2018

Plastic is one of the most environmentally hazardous and problematic materials in the world of disposable products. It’s not only problematic because it’s a non-biodegradable material, but also, because of the hazardous chemicals used to createit. To compound the problem, globally we use approximately 260 million tons of plastic worldwide each year that sits in landfills, pollutes streets and oceans,on a daily basis, and depletes renewable fossil fuels. Plastic contributes to billions of dollars in waste from consumers purchasing plastic water bottles, storage containers, shopping bags, utensils, straws and other products. It is a common hazard that environmentalist, ecologist, and industrialists are aware of, as well as, policy makers; yet, globally, we continue to increase the amount of waste from plastic in landfills every day. Although plastic serves as a viable solution for many marketable needs, research suggests it is far more harmful to humans, wildlife, and the environment than it is helpful and therefore should be replaced and reduced.

Types of Plastic Hazards

 Plastic pollution is a growing problem, but is it an insurmountable one? From plastic bottles, to bags and straws, researchers consider plastic to be a big problem along coastlines worldwide. “One study suggests as much as much as 8 million metric tons of (8.8million short tons) of plastic wound up in the ocean in 2010 alone (Science New, 2015).” Plastic pollution has amassed to the extent that it has attracted the attention of environmentalists who are now calling for policy makers to address the hazards that it is causing to marine life and greenhouse gases. The problem with plastic is that it can only be broken down into smaller pieces. Plastic is not bio-degradable and cannot fully dissolve or convert into reusable materials. Many of the tiny fragments that it is broken down into end up in the ocean and kill ocean life.Way too often we see plastic bottles lying in gutters on the street. Plastic bags blow atop of tree branches along with food wrappers and straws littering sidewalks and streets.

Plastic Bottles

 “Plastic water bottles are not biodegradable, meaning that it cannot disintegrate and become compost. Also, water bottles are not recycled; instead these are down-cycled to developing countries. Plastics like these are also thrown into oceans like the Pacific Ocean, plus animals eat these and end up dying. In fact, people have looked inside dead animals and found garbage (Bennink et al., 2012)” The broken down pieces of plastic are referred to and E-trash and is shipped to less developed countries where, of course, they do not have the means to convert tiny plastic pieces into meaningful or useful items.

Plastic Straws

 Over populations and consumerism contributes to the creation of wasteful products like straws. Once again, although convenient, straws have amassed as litter where sea animals and wildlife live. Shock and outrage from a straw discovered in the insides of a large turtle sparked what has become a ban on plastic straws. Christine Figgener is the marine biologist that videotaped the removal of a straw inside the nostrils of a turtle. Just like water bottles, straws are not easily broken down and are not biodegradable, but even worse; straws are twice as likely to be thrown on the ground as water bottles. “By some estimates, Americans throw away 500 million plastic straws a day. The no-plastic movement, which has grown steadily in recent years, gained momentum following a viral video three years ago that shows a sea turtle with a plastic straw wedged in its nose (Bhattarai, 2018).”

Plastic bags

 Plastic bags have been a part of consumer shopping for thirty years now. Once again, plastic bags are a non-degradable material that is harming the environment with the chemicals they are made with as well as to litter and solid waste they contribute to. “Single-use plastic shopping bags harm the environment in several ways, from the point of creation to eventual disposal. First, these plasticbagsare comprised of high-density polyethylene ("HDPE");17 therefore, the production of plastic carryout bags requires both petroleum and natural gas, which are non-renewable resources.18 It takes an estimated twelve million barrels of oil to produce 100 billion plastic bags, the estimated number of plastic bags used in the United States each year.'9 Additionally, transportingplasticbags to retailers, and later to landfills or recycling centers, releases carbon dioxide emissions into the air.20 Carbon dioxide emissions increase toxicity in air particles, contributing to air pollution and arguably to global warming (Warner, 2010).”

Challenges of Solid Waste Management

Recycling has been the method of environmental control for plastic trash for years however it remains ineffective for several reasons. Less industrialized countries do not have access to recycling centers or services. Their plastic trash is handled by local sanitation departments that take garbage to landfills. Waste management companies are challenged with the task of collecting, storing, and disposing of community waste. Masvingo, Zimbabwe is a good example of the type of problems undeveloped nations face with managing solid waste like plastic. Masvingo is the oldest town in Zimbabwe, established in 1890. From 2002 to 2008 Masvingo had undergone urbanization and spatial growth in the province’s population that caused increased sanitation needs. In six years, the province grew by approximately 30,000 citizens. The city of Masvingo’s waste management system suffered in several areas:

* Lack of transport. “Out of nine sanitation vehicle one 3 were operational (Mapira, 2011).”
* Lack of equipment. “The only bulldozer that the City council had procured for waste management purposes lies broken down due to the nationwide shortage of spare parts. The Council now depends on borrowing bulldozers from other government departments but only if these vehicles are not in use in their departments, which is quite rare. As a result, the city council has failed to cope with its normal operations(Mapira, 2011).”

Additional issues with dumbing, by Masvingo’s citizens, posed a problem for Masvingo’s waste management department. They simply could not keep up with the level of solid waste that was accumulating as a result of population growth. Nonetheless other problems included:

* Scavenging
* Cultural hygiene
* Inefficient power supply

The city cannot afford fencing to keep out scavengers and dumping. “The only bulldozer that the City council had procured for waste management purposes lies broken down due to the nationwide shortage of spare parts. The Council now depends on borrowing bulldozers from other government departments but only if these vehicles are not in use in their departments, which is quite rare. As a result, the city council has failed to cope with its normal operations(Mapira, 2011).”They also suffer from the lack of participation from private stakeholders who are less than willing to contribute financial assistance to the city’s sanitation problems. Albeit problematic, waste management is a ubiquitous problem for under-industrialized cities around the world. Mapira and Mungwini asserted, “There is need for the Government of Zimbabwe to forge links with foreign donors so that effective solutions to the waste disposal problem can be found and implemented. Issues of waste disposal and management should be given a high priority status at national level, which is not the case at the present moment (2005).”

Solutions

 The ban-plastic movement is one solution to plastic pollution problems. The movement requires legislative help from government officials nationally and internationally. Many environmentalists believe that smaller countries that suffer from harmful and hazardous plastic materials need assistance from neighboring countries that are more developed. Some companies and businesses have already banned plastic straws without prompting by legislation.

Holistic Approach

Urban cities should take a holistic approach to waste disposal and management problems.This means going beyond merely enacting laws that simply place band aids on the problems, as is often the case. Such an approach should be achieved with well-funded research. Governments should forge links with foreign stakeholders so that effective solutions to the waste disposal problems can be found and implemented. Issues of waste disposal and management should be given a high priority status at national level, which is often not the case for many small countries.

Environmental Awareness

Environmental awareness campaigns are also necessary because the public does not always practice healthy waste disposal management and treat health issues too lightly. This is evidenced by the indiscriminate littering of garbage in oceans and on land. Dumpers do not usually recycle and scavengers risk their lives sifting through hazardous materials and shifting things like small pieces of plastic that end up in rivers and lakes. City council members should team up with environmental watchdogs such as REACH, LEEP, UNEP, and the EPA, as well as, the media in order to educate the public on these issues. In the long run, a cleaner environment can be realized and when this is achieved, it will help significantly to promote sustainable development globally.

References

Bennink, J., Haile, S., & Kieley, R. (2012). Pollution caused by plastic bottles shock

youngsters.*The Post* Retrieved from http://nclive.org/cgi-bin/nclsm?url=http://search.proquest.com/docview/1240507950?accountid=13217

Bhattarai, A. (2018, Feb 07). Last straw as plastic disfavored?; restaurants seek alternatives to

drinking tubes.*Daily Press* Retrieved from http://nclive.org/cgi-bin/nclsm?url=http://search.proquest.com/docview/1994606915?accountid=13217

Henry, T. (2016, Jan 04). FEDERAL LEGISLATION; ban on microbeads quietly becomes law;

plastic pollutants gone by july, 2018.*The Blade* Retrieved from http://nclive.org/cgi-bin/nclsm?url=http://search.proquest.com/docview/1764354013?accountid=13217

Mapira, J. (2011). Challenges of solid waste disposal and management in the city of Masvingo,

Zimbabwe.*Journal of Social Development in Africa, 26*(2), 67-91. Retrieved from http://nclive.org/cgi-bin/nclsm?

Mapira, J. and Mungwini, P. (2005). River Pollution in the City of Masvingo: A Complex Issue,

Zambezia Vol. 32. Nos.i/ii: pp 95-

Tiny plastic, big problem. (2015, Apr 10). *Science News for Students,*Retrieved from

http://nclive.org/cgi-bin/nclsm?url=http://search.proquest.com/docview/1672359979.

Warner, B. M. (2010). Sacking the culture of convenience: Regulating plastic shopping bags to

prevent further environmental harm.*The University of Memphis Law Review, 40*(3), 645-680. Retrieved from http://nclive.org/cgi-bin/nclsm?url=http://search.proquest.com/docview/578370386?accountid=13217