

Causes of Plastic Pollution and Methods of Preventions

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ABSTRACT: *Plastic pollution occurs when artificial plastic products accumulate in the environment to the point that they damage wildlife, ecosystems, and human populations. As the world's capacity to cope with the fast-growing creation of throwaway plastic goods outperforms the world's authority to deal with it, plastic pollution has become one of the most critical environmental challenges. Most plastics take a long time to degrade because their chemical structures make them resistant to many natural breakdown processes. These two elements have resulted in a large amount of plastic pollution in the environment, which is affecting human health. As the world's population expands, so does desire for plastic, which is manufactured without regard for the environmental effects of its handling and disposal. Organic polymers derived from petroleum-based chemicals are used to make the majority of today's plastics. Plastic trash is currently one of the most serious environmental problems of our day, with manufacturing exceeding nearly every other substance. The magnitude of the task is intimidating. Plastic pollution, as well as its causes and preventative techniques, are the focus of the research. As scientists work to build polymers manufactured from biologically based compounds, things will alter in the future.*

KEYWORDS: *Atmosphere, Biologically, Environment, Health, Plastic Pollution.*

1. INTRODUCTION

Pollution from Plastic is the buildup of plastic elements and items in the environments that hurts people, animals, and wildlife habitats. Pollutants are chemicals that hurt a population's health, activities, or survival. Like Thousands of tons of contaminants are released into air every day as a result of natural phenomena and human activity. Pollutants discharged into the atmosphere as a consequence of human activities are much more dangerous. The Northern Hemisphere, according to, has the highest density of mega and microplastics, which is located around the debris-carrying stream. Plastic has also been found off the coasts of a number of islands. Packaging materials, footwear, as well as other household items often employ mega- and micro-plastics. These are advanced found washed up on beaches or abandoned in landfills. Some fishing gear may even be discovered on faraway islands. Plastics are both cost-effective and durable. These are the reasons why human plastic production is relatively significant, and demand is increasing on a daily basis. Human actions have the ability to put people's lives and natural ecosystems at jeopardy (Iyer et al. 2021; Eryuda 2017; Kemenkes 2017)(Thappa et al. 2021).

Plastic waste is the buildup of artificial plastic items in the environment to the point that they endanger animals and their habitats, as well as modern humans. By putting genuinely synthetic plastic resins into global commerce, Bakelite's development in 1907 ushered in a material revolution. Plastics have been proved to harm the environment for a long time. Everest would be climbed all the way to the ocean's bottom by the end of the twentieth century. Plastics have recently received a lot of attention as a significant cause of pollution, if they're mistaken for food by animals, flood low-lying regions by blocking drainage systems, or just wreak havoc on the environment. Humans are also subjected to plastic waste, which is harmful to their health. According to the state of plastics report, just 9percent of total of the nine billion tons of plastic ever generated has been recycled. The vast majority of it ends up in a landfill, dumps, or the environment, especially in the oceans (Anand 2019; Singh 2019; Abramovich et al. 2009; KARRA 2007; Naciri 2007).

1.1. *The Effects of Plastic Pollution on the Environment:*

Plastics contain a huge amount of hazardous compounds that have the potential to contaminate water, land, and air, resulting in major environmental damage. Plastic is one biodegradable material that has the potential to damage the natural ecosystem and cause long-term difficulties for animals, plants, and humans. Several factors influence how plastic waste is spread, including wind and ocean currents, urban areas, coastline geography, and trade routes. In only certain locations, the human population has a huge influence. Polypropylene is often found in confined regions, such as city nooks and crannies, wreaking havoc on the ecosystem. This is critical for species dispersion to far-flung coastlines outside of their original environments. Plastic pollution has a number of detrimental effects on our environment, including groundwater contamination, food chain disruption, animal fatalities, land pollution, toxic capability, air pollution, as well as expense (Landrigan et al. 2020; Bhateria and Jain 2016; Goralczyk 2021; Swathi G 2021).

- **Pollution of Groundwater**

Water that is found in rocks or un-consolidated materials under the Earth's surfaces is referred to as groundwater. Groundwater connects surface water systems to the material that makes up the Earth's Crust. According to, in most locations, groundwater in its natural form is generally contaminant-free. Contamination of groundwater may be a severe concern since it is an extensively utilized source of drinking water. Our drinking water, whether purchased in bottles or drawn from the faucet, is sourced from the Earth's surface streams and lakes, as well as groundwater. As a result of the seeping of plastics and rubbish, the world's water is at raise when it rains, all of the rubbish dumps, landfills, and plastic debris that litter the landscape are washed into the groundwater sources, which are used to make our drinking water. Leaking environmental contaminants may pollute groundwater and reservoirs, resulting in contaminated water. Plastic has littered and poisoned the world's ocean, causing it to suffer negative consequences. This has had catastrophic environmental ramifications

for many marine species, as well as negative consequences for humans who consume fish and other marine animals for their nutrients(Xinguang 2021; Cavariani et al. 2006; Mrkva 1993; Valavanidis and Vlachogianni 2015).

- Animal Homicides

Plastic wastes, such as shopping bags as well as containers, and some other items discarded on a daily basis, have resulted in the death of a variety of animals in the area, including ducks, dolphins, fish, game birds, turkeys, turtles, and the others, when they become entangled in them or poisoned by the toxins produced by plastic wastes. This has serious consequences for nearby creatures and is damaging to the ecology.

- Pollution of the land

Plastic waste is often full of garbage. When this occurs, there is contact with water, which causes hazardous chemicals to develop. When toxins sink under the surface, the water quality suffers. Wind has increased plastic pollution by transporting and depositing plastic from one site to another, resulting in terrestrial litter. Plastic debris may also get entangled on trees, fences, towers, poles, traffic signals, roofs, and other buildings, smothering animals that come into touch with it in the environment.

- Poisonous Power

Plastic pollution is hazardous to one's health. Animals may be poisoned by plastic pollution, which can hurt human food sources. Plastic is made from a variety of harmful compounds that man has created purposely. In general, the usage of plastics and exposure to plastics has been connected to a slew of health issues that impact individuals all over the globe. Plastic contamination has a significant negative impact on huge marine creatures. It is the most serious threat they face. Significant quantities of plastic have been identified in the stomachs of various marine creatures, including sea turtles. As a consequence of this, the animal grows hungry. This is due to the fact that plastic obstructs the digestive tract of the animal. Marine creatures may get entangled in plastic goods like nets, causing injury or death.

- Pollution in the Air

It is defined as the presence of chemicals in the atmosphere at quantities high enough to damage living beings, ecosystems, or man-made objects, as well as to influence the climate. Today, air pollution is a worldwide issue; even regions far away from the polluting source may be affected since poisons are readily transferred over national borders by atmospheric circulation. Poisonous/toxic compounds are emitted when plastics are burned in the open air, landfills, or incinerators, causing environmental degradation. Furthermore, when waste plastics are inhaled, they contribute to greenhouse gas emissions, which have detrimental consequences for both humans and animals. As a result, contaminated air affects the health of animals and people, producing endocrine and respiratory disorders, among other things. Expensiveness: Pollution caused by plastic is costly. Because landfills and incinerators are ubiquitous, cleaning up the affected regions once they have been revealed costs millions of Dollars per year. Animals, plants, and people have died as a result of breathing poisonous compounds from plastic garbage. As land is utilized for various reasons, it becomes more expensive, and finding a location to dispose of rubbish and trash has become a challenge in many areas of the globe. Excessive pollution reduces tourist and leisure opportunities in the afflicted regions, harming the economy.

2. DISCUSSION

2.1. *Special impacts of Plastic Pollutions on Health:*

Plastic contamination occurs when it gathers or collects in a certain region as well as starts to have a detrimental influence on the environment, posing a threat to plants, animals, and humans. This entails the annihilation of plant life while also presenting a threat to people and nearby animals. Plastics are a versatile material that may be used at home and in bigger communities, yet they are created from harmful chemical compounds that can cause human sickness. Hormone disruption and carcinogens have been linked to plastic. Chemicals used in basic plastic feedstock manufacture have been linked to neurological, cancer, reproductive, and developmental damage, as well as

immune system injury and birth problems. The human health impacts/effects of plastic production, according to research, are complex, significant, interpenetrating, but rather dangerous at every stage of a plastic lifecycle, from wellhead to refinery, from store shelves to human bodies, and from waste management to existing impacts such as water, air, and soil pollution.

Crude oil is used to make the bulk of polymers. Plastics with the PLA designation are made from sugars found in maize or other plants like cassava. Plastic is manufactured entirely of fossil fuels. Oil and gas production, especially natural gas hydraulic fracture, releases a wide range of hazardous substances into the air and water, often in large amounts. Human eyes, skin, and other sense receptors, as well as the neurologic, respiratory, and gastrointestinal systems, as well as the brain and liver, are all affected by these toxins. During the conversion of fossil fuels into synthetic plastics and additives, carcinogenic and other very harmful chemicals are discharged into the air.

Microplastics enter the body of humans through direct exposures that result in ingestion or inhalation, causing a variety of health impacts/effects such as oxidative stress, inflammation, genotoxicity, apoptosis, necrosis, dizziness, and unconsciousness, all of which have been linked to a variety of negative health outcomes such as cancer, cardiovascular disease, diabetes, chronic inflammation, inflammatory bowel disease, and rheumatoid arthritis.

2.2. *Plastic Pollution Prevention:*

The current pace of growth of plastic garbage in the globe is depressing and unjustified. People are dealing with a worldwide plastic trash problem that is smothering our environment and harming ecosystems. These ecosystems must be safeguarded from further harm, and steps must be done to create a world free of plastic trash. Industrialists have the power to alter the numerous ways in which the world consumes, wastes, and recycles plastic. As a result, ecosystems, animals, and seas must be

returned to a healthy condition, and the world must be transformed into one free of plastic trash. The following are some of the strategies for decreasing plastic waste:

- Reuse

The capacity to reuse materials in their original state rather than discarding them after each use is referred to as reusability. This not only guarantees that the material's lifespan is extended, but it also reduces waste. Reuse is fast being recognized as a critical component in solving a variety of societal issues, including poverty, health, and happiness. It is important for the general public to realize that reuse is not a waste issue. It gives items a second shot at living. It did, however, result in a decrease in the usage of non-biodegradable plastic bags.

- Reduce

In order to prevent plastic pollution, we must reduce our use of plastic. This requires us to adjust our everyday habits, such as avoiding the use of plastic when a better option is available and only using plastic when absolutely necessary. Plastic packaging should be avoided at all costs. Cereals, nuts, lentils, as well as pasta, for example, may now be purchased unwrapped at supermarkets. Reusable bags or jars are utilized instead.

- Recycle

To limit the quantity of plastic in the waste stream, recycling entails collecting plastic trash and transforming it into new items. Because plastic does not degrade rapidly, recycling it just means that it is still plastic, but it may be used. Recycling does not lower the quantity of plastic consumed; existing plastic is still used in recycling processes, but it is transformed into new plastic. As a consequence, recycling does not indicate a decrease in the amount of plastic used or the amount of plastic exposed to the environment. Plastic is a wonderful material, but it must be recycled correctly to avoid polluting the environment.

- Informing Businesses

Increased awareness and behavioral change may be achieved via education. People must be educated and informed on how to properly dispose of plastic to avoid plastic pollution. It is necessary to engage with the operators of native restaurants as well as businesses about the replacements to smoking and packing things. Many businesses are emerging with good low-cost alternatives, likes bamboo utensils instead of the plastic utensils. When consumers ask for straws to drink beverages, beers, or soft drinks like Coca-Cola, restaurants, event centers, and company owners must be instructed to deny them. Customers should not be allowed to use plastic drinking straws.

3. CONCLUSION

Plastic does not decompose. It is almost impossible for it to fail. It lasts a long time compared to other types of waste. Plastic may be found almost everywhere. Plastic pollution is mostly caused by human error. Natural calamities, likes floods, must also be taken into account as sources of pollution. Humans use large amounts of water on a daily basis to keep their bodies hydrated. Due to its mobility, this is mostly accomplished by using plastic water bottles. The majority of them are solely intended for one-use, implying that after that bottle is consumed, it is discarded. Furthermore, it is regrettable that today's commuters and vehicles trash our roadways with the plastics bottled water as well as soft beverages.

Bottles of Plastic may be discovered on both sides of the roads, dumped carelessly by commuters after they have been used, oblivious to the consequences. As a result, it is necessary to eliminate this threat. Producers of resin-based plastics must alter their techniques and business models. This is because customers do not want plastic garbage to ruin the environment. As a result, recycled plastics must be used. People are encouraged/advised to refrain from bringing plastic bags inside their homes and from buying things with excessive packaging. In this manner, you may contribute to the environment by minimizing plastic pollution, which has irreversible negative

consequences. Reusable bags may be used instead of plastic bags. This flyer urges people to use recycled plastic instead of virgin plastic and to contribute to a fund that helps clean up the environment.

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