

Plastics Awareness for Sustainable Development

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Abstract

Accumulation of plastic products in the Environment that adversely affects wildlife, habitat of humans is a major concern for the government at present. As plastic is non-biodegradable in nature, it remain in environment for several years. As a result it is responsible for causing land, air and water pollution. Plastic pollution has been constantly damaging our sustainable environment. The production of plastic is increasing since 1950, 8.3 billion tons of plastic has been produced, which is likely to be double by 2050. The burning of plastic wastes increase the risk of heart disease, damages the nervous system, respiratory ailments such as asthma and cause nausea or headaches. Hence, a sustainable step towards tomorrow's greener and healthier environment needs immediate attention of the environmental scientists. There is an urgent need of creating awareness among people to protect environment in the current situation and ban the usage of plastic.

Keywords: Plastics; Plastic waste management; Environment and health impacts

Introduction

Plastics are synthetic substances produced by chemical reactions. Plastic is derived from the Greek word 'plastikos' meaning is being shaped or molded. Plastic was first invented from New York in 1907 by Leo Baekeland. However, he could not have anticipated such an exponential growth of plastic production. Because of their low cost, easy production, non-corrosiveness, and imperviousness to water, plastics are used for multiple purposes [1-6].

Plastic waste leads to the degradation of our environment. Increasing population, urbanization and industries have contributed to an increase in plastic manufacturing. This increase has been rapid since the middle of the 19th century which has affected the quality of the environment. The urban population has grown rapidly over the last two decades. One among the reasons for urban population growth is the migration of rural population to cities. Rapid population growth, urbanization, and industrial growth have led to sever problem of waste generation. Due to the large benefits of plastics in different applications, its use is increasing all around the world industries. The plastic products namely carry bags, colored plastics pots are fast becoming popular both in rural and urban areas of India.

The environmental hazards due to mismanagement of plastic waste include the following aspects:

Chlorinated plastics can release harmful chemicals into the surrounding soil, which can then mix into groundwater sources. This can cause serious harm to living beings which drink this water [7-10]. Plastic in the ocean typically polystyrene can leach into the water. Polystyrene is the most common type of oceanic debris.

Classification

Plastics can be of two general categories:

Thermoplastics: They have either a linear or branched chain with amorphous or semi-crystalline materials. The polymeric chains are bound together by weak Vander wall's forces of attraction and hence do not have cross-links. It becomes soften on heating and hardens on cooling. These plastics can be remolded, reshaped and reused. Examples of thermoplastic are cellulose derivatives, polyamides, polystyrene, polyvinyl, polyethylenes, etc.

Thermosetting plastics: They have cross-linked structures in which various polymeric chains are held together by a strong covalent bond. These plastics do not soften on heating and they are hard and strong. These plastics cannot be remolded and hence cannot be reused. Examples are phenolic resins (Bakelite), polyesters (terylene), etc.

Statistics regarding plastics

Plastics have extensive industrial applications. They are widely used in making electrical instruments, telephones, automobile parts, lamps, optical instruments, household appliances, etc. Plastic materials when dumped into the ground prevent the production of nutrients in the soil. Because of this, the fertility nature of the soil is reduced and affects agriculture production. When its persistence in the surrounding and modifies the environment (air, water, and soil) sustainability causing dangerous pollution [11-15].

Plastic has become a valuable material in modern society. It has been observed from the survey of the literature that each year 9.1 billion tons of plastic are produced since 1950 and 1 million plastic drinking bottles are often used every minute. In 2015, scientists reported that out of 7 billion tons of plastic waste generated, only 9% was recycled, 12% incinerated, and 79% accumulated in the soil. According to the Central Pollution Control Board, the plastic consumption in India is almost 8 million tons per year and out of which 5.7 million tons of plastic is converted into waste each year.

Environmental impacts

Plastic pollution is a major threat to the green environment. Persistent in plastic bag wastes cause serious environmental pollution which can be manifested in a number of ways such as deterioration of the natural beauty of our environment. As we are aware that in our country, plastic bags are often used to carry food items and plastic water bottles as storage of different beverages like water, soft drinks; food items like oil and milk etc., This practice can cause serious health problems due to contamination by the microorganisms. The plastic we use can harm us. The things that make plastic so attractive to manufacturers and consumers are the same things that make it so harmful to our health and sustainable environment.

Possible solutions

1. Use paper or cloth bags instead of plastic bags
2. Reuse plastic bags many times to reduce consumption
3. Avoid using plastic bottles for feeding milk to babies
4. If you select between different plastic products, choose the product that can be reused or recycled
5. Try to reuse plastic can or bottle for other purposes instead of disposal
6. Avoid plastic cups for drinking tea and coffee

Conclusion

Most of the environmental tools of plastics like cell phones, computers, helmets, and hospital bags have molded society in many ways that make life both easier and safer. Plastic produced every year is used to make for single use, disposable packaging items or products when they are thrown out which damage the green environment. It is due to a lack of self-discipline and not worrying about future generations, selfish attitude and consumerist human has damaged the environment. It is the responsibility of educational institutions to sensitize and create public awareness. In addition to creating public awareness of the importance of a clean and healthy environment, plastic recycling facilities must be recommended. The article presented here will help the society to reduce their exposures to plastics and ensure the increase of a healthy society with a clean environment for the next future generations. Last but not least, efforts must be taken to reduce the use of plastics and thereby to promote plastic recycling have to occur.

Conflicts of Interest

The authors declare no conflicts of interest.

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