



## Impact of Plastic on the Environment

**Prabhash Kumar**

P.G, Department of Environmental Science,  
Magadh University, Bodh Gaya, Bihar, India

### ABSTRACT

Plastics are a part of our daily lives."Plastic are high molecular weight organic polymers which can be moulded into desired shapes by the application of heat and pressure". Unfortunately, that doesn't mean they're safe or responsible. Plastic pollution is currently one of the biggest environmental concerns. It may seem like large amounts of plastic waste are inevitable in the world we live in, but you can help with the plastic pollution issue by being aware of its dangers and taking steps to reduce waste. The amount of garbage in the world increases as the population grows, and disposable plastic products, like water bottles and soda cans, accumulate over time. Plastic pollution occurs when enough plastic has gathered in an area that it affects the natural environment and harms plants, animals, or humans. Plastic has toxic pollutants that damage the environment and cause land, water, and air pollution. It can take hundreds or even thousands of years for plastic to break down, so the damage to the environment is long-lasting.

Overuse of plastic is the main cause of plastic pollution. Plastic is cheap and widely available, but people frequently dispose of plastic items. They don't decompose, and they release an incredible amount of toxins into the air if they're burned. Regular, everyday trash is one of the biggest contributors to plastic pollution. Milk cartons with plastic linings, disposable water bottles, soaps with small plastic beads, and other products end up in the environment or in dumps where they can affect the groundwater and nearby wildlife. Commercial fishing nets are another big issue. Although fishing is necessary for the economy and for food supply in many regions, nets are often made of plastic. When the nets are submerged in the

water, they leak toxins. They can also break or get lost, adding even more pollutants to the water.

The pollution in the river and land is mostly from plastic, and it has a terrible impact on marine and land species. As a result, it can hurt the economy and food supply for communities that rely on fishing. Plastic can hurt tiny organisms like plankton, which larger animals rely on for food. If small organisms are poisoned from ingesting plastic, the animals that eat them will also consume toxins. The toxins work their way up the food chain and can even be present in the fish people eat. Not only does plastic cause damage to the ocean, but it can also damage groundwater sources. Many regions are already facing issues with, but water sources everywhere are in danger because of plastic pollution. Plastic toxins in dumps and from litter can seep into the groundwater, which people drink every day. On land, wind can carry plastic waste or litter throughout the environment.

**Keywords:** *plastic, animals, environment, rivers, landfills, hydrocarbon, pollution, eco*

### INTRODUCTION

In modern times of the twenty-first century, a tremendous amount of human-made products and technological advances are created using plastic, a resource that has various helpful uses. However, because of the abundance and durable lifespan of plastic, the resulting waste is exponentially growing and harming the environment. Plastics are long-lived, inexpensive products that are mainly used as single-use items that get disposed of within months of production, only to take centuries to decompose. This

poses a problem for plastic waste, especially when millions of metric tons of plastic are produced annually. Pollution, especially plastic, persists for decades in habitats, creating significant environmental consequences on the planet, a fact that can be helped or harmed by human actions. The global environment is changing day by day and now it has become a challenge to living life forms due to the very ugly fact that every nation is trying to develop their countries without taking into consideration of environmental impact of degradation and pollution of agricultural lands. More and more factories are being steadily established and harmful chemicals and materials are being used in the production process. People are using plastic bags, which are environmentally dangerous products, for their daily needs mainly for shopping purposes as a result of which, the environment and agricultural lands are thereby being polluted. Therefore, in an attempt to reduce the environmental as well as agricultural land pollution, consumers of plastic bags and the business organizations together can play a great role.

### **Objectives of the paper**

The objectives of this article are to analyze the damaging impact of plastics on the environment and secondly to suggest alternative shopping bag which are biodegradable and environment friendly.

### **Impacts of Plastic on Environment**

Plastic cause a large scale negative impact on our Ecosystem. As people are not conscious to recycle plastic, they throw them everywhere as and when they like and as an unavoidable consequence these discarded plastic will ultimately find their ways to agricultural fields mixed with other decomposed materials. As plastic do not decompose with soil they remain in the agricultural lands and blocks as well retard the progress of growth of agricultural plants. Plastic have that inherent property that even though very thin, roots of crops fail to pierce them in order to move around the soil for natural nutrients. Thus, plastic have caused tremendous harm to the growth of agricultural produces.

Due to several uncaring factors, around 85 percent of all plastic grocery bag are dumped into landfills (Willimson, 2003). It is well known that plastic are non-biodegradable; however plastic decompose very slowly, if at all. In fact a bag can last up to 1000 years in the soil inhibiting the breakdown of biodegradable

materials around or in it (Stevens, 2001). Plastic grocery bags which are light causes additional harm to the environment as they can be easily blown away by air and as a result they become fixed to tree and plant branches. This makes the environment ugly. These plastic also fill ditches of roadsides, rest on public waterways, rivers and oceans.

Impacts of plastic are very harmful in several aspects and consequently these bags become the very threat to our food and life. The most common final resting place for the plastic bags is the garbage bin, thus resulting in huge volumes of plastic bags filling the landfills that remain on strategic surfaces of the planet. As the plastic bag is non biodegradable and almost non-compostable (Stevens, 2001), it stays in the soil for an excessively long period of time thereby causing unimaginable harms to the agricultural sectors. The agricultural crops cannot grow where the plastic bags stay because their roots cannot move around due to the ever present of plastic bags. It is really amazing that the thin plastic bags are so strong that the roots of trees are unable to pierce it to find its way inside the soil to find nutrients; on the other hand we find plants and trees on the mountains mainly because of the obvious absence of the plastic . The most significant negative impacts of the plastic bags on agriculture are: reduction in soil fertility, decrease in nitrogen fixation, huge loss of nutrients in the soil, decrease in crop harvest, disparity in flora and fauna on soil etc. These negative impacts of plastic bags in fact reduce soil fertility to a great extent and thus reduce agricultural production to a great quantity.

### **How Plastic Waste Affects Ecosystem**

Waste pollution has varying effects on the ecosystem, but several effects can specifically be traced back to plastic waste. Perhaps the most highly publicized problem regarding plastic waste in the environment is that of animal entanglement. Aquatic organisms, birds, and even some land animals can ingest plastic particles or become tangled in them, leading them to choke or starve to death because the plastic prevents them from properly moving or eating. An article from the journal Environmental Health News, titled “The Environmental Toll of Plastics,” reports: “More than 180 species of animals have been documented to ingest plastic debris, including birds, fish, turtles and marine mammals” (Knoblauch). Certain species are more susceptible to plastic ingestion or entanglement depending on how they feed and the level of pollution

in their ecosystem. Another issue regarding waste in the environment is how it changes the very ecosystem that organisms live in. The presence of waste can change the temperature of the atmosphere or the pH level of water, causing a ripple effect in plant and animal health. These waste items can be extremely simple or small, but the accumulation can become toxic for animals and habitats. According to the article “Using Expert Elicitation to Estimate the Impacts of Plastic Pollution on Marine Wildlife” from Marine Policy, the leading journal of ocean policy studies, “The top 10 items collected during Ocean Conservancy’s annual International Coastal Cleanup have remained remarkably consistent, with cigarette butts topping the list and plastic items making up 83% of the remaining items” (Wilcox). The careless litter of objects even as small as cigarette butts can have cascading environmental consequences. Changing the smallest of behaviors and actions could prevent the enormous accumulation of waste.

## METHOD CONTROL OF PLASTIC POLLUTION

**1 Method 1:** By minimizing the usage of plastic stands first because by that we can minimize the amount of consuming the plastic materials and that is implemented by usage of paper bag's thus it cost more we can increase the taxation or by making the paper carry bag payable and also by implementing law to produce paper carriers, paper cups and paper containers to meet high quality that can satisfies vendors and also consumers.

**2. Method II:** Enforcements of laws on excessive usage on manufacturing of use and throw plastics be made illegal up to an extend and littering of plastics in public places should be fired as other crimes are being done .the norms on manufacturing should be followed and excessive amount of manufacturing should be minimized.

**3. Method III:** As some survey say's the rural, urban and also in corporate cities the collection and disposal should be made at a proper manner where us in Indian cities the disposal is carried out commonly for biodegradable and non bio degradable materials plastic belongs to non bio degradable material which should be separated from biodegradable material and all along are recycled though we are doing the above mentioned procedure. For larger amount of disposed and wasted plastic we want to carry out or adopt the same method

**4. Method IV**  
Keeping our environment clean is more important than keeping our home clean, and maintaining self responsibilities of disposal of plastic waste should be done by each person personally, rite from person one till it gets disposed or recycled the process tree should be done properly to achieve our goal and by implementing the process mentioned in the figure. We can able to minimize the plastic hazard to the environment.



\* Retailers are permitted to use all bag types for takeout foods and liquids only.

\*\*Product bags, made from both paper or plastic, for the sale of grocery store produce and meats, prepared take-out foods and liquids, are exempt from the ban for public health and safety reasons.

## Data Collection and Analysis

Data has been collected from public in the relevant field by asking questions from the questionnaires. Majority of the public have given similar opinion while answering the questions.

## SPECIAL SUGGESTION

A good technology out of Japan called a “Blest Machine” which convert certain plastic into oil and if presently commercially available in sizes ranging from a batch processing to table top versions that is successfully used in homes of japan and that convert plastic composition like [Polyethylene, Polystyrene and poly propylene, PP, PE, PS] to oil, mean while, methane, ethane, propane and butane gases are released in the process and the machine is equipped of gas filtering and disintegrates these gases in to water and carbon. So by implementing this type of innovation we can reduce the plastics thread in our

## Conclusion and Suggestions

Plastic is causing irreparable damage to the environment especially to the agriculture all over the world. The environment including its soil, water and air is seriously affected by the use of plastic. Plastic are manufactured with fossil fuel which emits toxic gas which has become detrimental to the various life forms in the planet (Institute for Lifecycle Environmental Assessment, 1990; Lajeunesse, 2004). Inconsiderate disposal of plastic after use and lack of proper management in non-industrial countries are also causing trouble to the environment. Whimsical disposal of plastic bags clog drain pipes, thus contributing to massive floods.

Thus by implementing the above mentioned method and by adopting technique that are being created we can be able to reduce the hazard. We are facing and also to avoid extreme consequences from our nature. Thus the paper discusses and brief about the same thing which is already in words to be converted into action. Because that support to avoid worst situation and to maintain our planet earth remains green always and not only for our benefits but also its our own responsibility to leave our planet green for our next generation to and so its high time to get alarmed about the hazards contributed by plastics. Finally coming to end of our distribution the only thing we have to do this to adopt proper strategies that can dissolve plastics from our environment is the ultimate goal.

## REFERENCES

1. M.K Rahman International Journal of Learning & Development 2013, Vol. 3,
2. Li Xudong. (2011)“ Study on Environmental Pollution of Agriculture and Countermeasures under the Double Failure. Energy Procedia.5,204-208.
3. Syeda Azeem Unnisa., and Bhuoatthi Rao.(2012).Plastic waste Management Strategies for Indian Cites. journal of chemical ,Biological and Physical Sciences.vol.2.no.1,514-518.
4. Baker, R. (2002). Ministerial Brief: Plastic Bag Levy. [Online] Available: [http://sres.anu.edu.au/people/richard\\_baker/examples/briefing/minty/Minty.html](http://sres.anu.edu.au/people/richard_baker/examples/briefing/minty/Minty.html)
5. Ellis, S; Kantner, S; Saab, A; Watson, M. (2005), Plastic Grocery Bags: The Ecological Footprint