

# Study on Impact of Single Use Plastic

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**Abstract-** Plastic primarily played a crucial character in protecting natural source from extension but in future plastic pollution become a rising worry for nearly a decade. Pollution from plastic endangers our nature, water, soils and food materials. Only 9% of the plastic waste produced worldwide so far has been recycled. The outstanding 79 percent has been collected in landfills, dumps, or the environment, with only about 12 percent being burned. 38 lakh tonnes of the 95 lakh tonnes of plastic garbage produced in India each year go uncollected. i.e. Single Use Plastics (SUP), ended in dumps, rivers and even our animals. Single-use plastics (SUP) misuse has negative effects on the environment, the economy, and human health. Several nations have launched campaigns to outlaw single-use plastics on a global scale. Based on the outcomes of this study, it is clear that stricter enforcement, increased awareness, and self-regulation as well as public pressure may contribute to reducing SUP pollution.

**Keywords:** Plastic Pollution, Single Use Plastic, economic and health effects, environment.

## I. INTRODUCTION

The term "plastic" comes from the Greek word "plastikos," which signifies that it may be moulded or formed into any shape. Plastics had progressed from natural plastic materials like chewing gum to chemically adapted natural materials like nitrocellulose, natural rubber etc. and lastly as a whole synthetic molecule. Since plastic was developed in the middle of the 19th century and started to become popular in the 1970s, paper and glass have lost their primacy. Though some plastic can be moderately or entirely created from natural elements, most plastic is synthetic and is often made from petrochemicals like natural gas, oils and coal. Our daily lives depend heavily on plastic because it is a cheap manufacturing choice. It is used to preserve the food we consume, maintain the cleanliness of medical equipment, lighten cars and planes to reduce fuel use and also in greenhouse gas emissions. But for hundreds of years, plastics have remained in the environment in some way. In order to jeopardize the security of our food sources, soils, water, and animals, plastic pollution is exploited. The creation of plastic is predictable to dual over the next 20 years and about quartette by 2050, based on current patterns.

Additionally, more plastic is predictable to be present in our oceans by the year 2050.

## II. SINGLE USE PLASTIC (SUP)

The term "single-use plastic," sometimes known as "disposable plastic," refers to materials that are frequently used for plastic packaging and are meant to be used just once before being discarded or recycled. These SUP should only be used once; reusing them raises the risk of leaching and bacterial development; they are tough to sanitize; and appropriate cleaning calls for the use of extremely toxic chemicals. Between 26 and 36 percent of all plastic in the world is made of this single-use substance, which is intended for fast disposal. Carry bags, plastic bottle caps, plastic drinking bottles, plastic sachets, food wrappers, plastic wrappers for consumer goods, straws and stirrers, multi-layer food packaging (such as chips packets), other types of plastic bags, and foam takeaway containers are common examples of avoidable or replaceable single-use plastic items. More than 400 million tonnes of plastic are thought to be created annually, and studies have shown that 79% of the plastic garbage that has ever been generated is discovered in dumps, landfills and the environment. Only 12% of plastic excess is burned, and only 9% is recycled. LDPE, HDPE, PET, PS, PP and EPS are the main polymers used to make single-use plastics. Plastics may be of two types i.e. Thermoplastics and Thermosets.

Currently, a sum of traditional used products have been changed by plastics (Table 1).

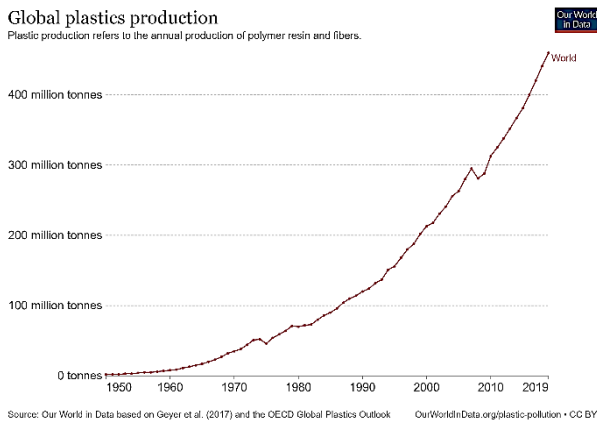
Product	Prior packaging materials	Present packaging material
Milk, edible oil	Metal, Glass	3 or 4 layer film pouches
Toiletries (shampoos /soap)	Glass or Paper	pouches of Plastic
Cement, fertilizer	Jute	HDPE/PP woven sack
Toothpaste	Metal	Plastic lamitube

## III. GLOBAL SCENARIO - PLASTIC WASTE PRODUCTION

More than 400 million tonnes of plastic are produced worldwide. Per year, of which 36% are used for packaging,

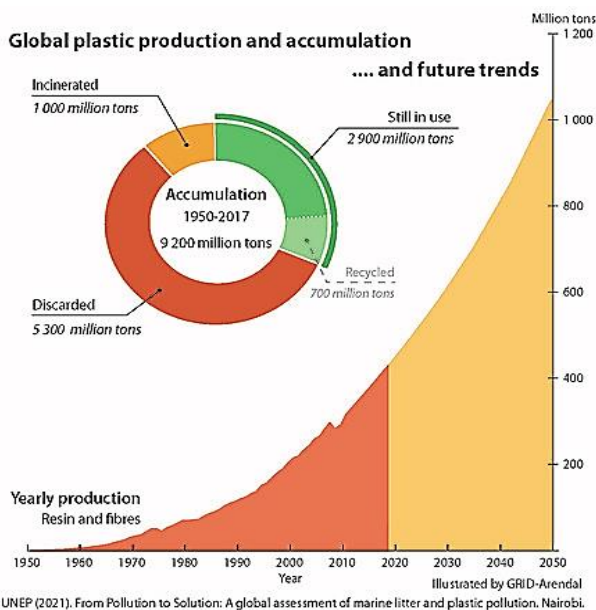
16% are used in architecture and construction, 14% are used in textiles, and 10% are used in consumer and institutional goods. About 47% of the plastic garbage produced worldwide in 2015 was waste from plastic packaging, with Asia appearing to account for half of that total.

When the amount of plastic surplus discarded into the ocean each and every year was considered in kilogrammes, it was exposed that the major crooks were India (126.5 million kg), China (nearly 70.7 million kg), and Indonesia (56.333 million kg).



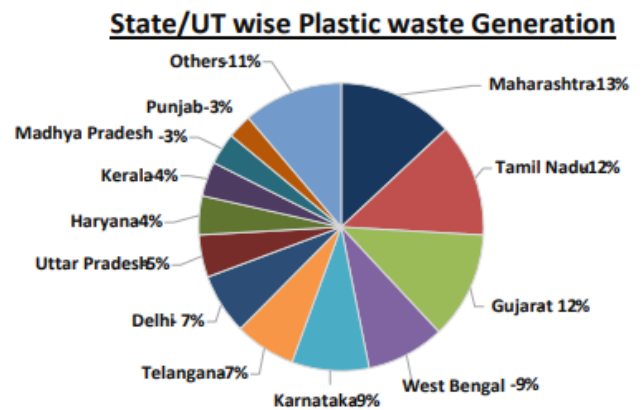
Top Countries that Produced the Greatest Plastic into the Ocean in tons 2021:

Philippines produced 356,371 tons of plastic waste and stands on first position. India stands on the second position with 126,513 tons. Then [Malaysia](#) with 73,098 tons, China produced 70,707 tons of plastic waste, then Indonesia with 56,333, Brazil with 37,799 tons, Vietnam with 28,221 tons, [Bangladesh](#) with 24,640 tons, Thailand with 22,806 tons and lastly [Nigeria](#) with 18,640 tons of plastic waste.



#### IV. PLASTIC WASTE PRODUCTION-INDIAN SCENARIO

The creation of polystyrene in 1957 marked a promising beginning for the Indian plastics sector. Significant advancements were made in the 1960s and 1970s, and the sector expanded and diversified quickly after that. The sector covers the entire nation, with over 2,000 exporters, over 50,000 processing facilities, and employs roughly 4 million people along the value chain. The majority of these units between 85 and 90 are small and medium-sized businesses that employ people. The amount of plastic garbage produced in India each year is 95 lakh tonnes, of which 38 lakh tonnes, or single-use plastics (SUP), are not collected and wind up in landfills, waterways, and even our animals. Every year, the ocean receives over 6 lakh tonnes of plastic trash.



(Source: Annual Report 2019-20, CPCB, Delhi)

#### V. OPPORTUNITIES WITH PLASTICULTURE

- Preventing the growth of weeds
- Conserving up to 60–70% of water
- Soil conservation
- Protection from unfavorable weather conditions
- Savings on fertilizers of up to 30–40%
- Alteration of cold desert/wasteland for productive use

#### VI. EFFECTS OF MISMANAGED SINGLE USE PLASTICS

By 2050, there will be almost 12 million metric tonnes of plastic garbage in landfills and the environment if we do not alter our consumption habits and waste disposal methods.

**Economic impacts:** The fishing, shipping, and tourism businesses all suffer financial losses. Lightweight foamed plastics have a high transport cost to a centralized facility since they are challenging to recycle at nearby facilities. The expense of removing accumulated plastic waste from the environment will go up in the future.

**Environmental effects:** It impairs streams, contaminates soil and water, and makes natural disasters worse. According to estimates, 99% of seabirds will have consumed plastic by 2050.

**Health impacts:** By obstructing sewage systems and creating mosquito breeding grounds, it increases the risk of malaria transmission. If burned, it produces fumes and harmful compounds. There would be higher chances of food chain contamination.

## VII. ACTIONS TO MINIMIZE SINGLE USE PLASTICS

- When going shopping, always bring a reusable bag.
- Buy in quantity. Avoid items that are separately packaged.
- Turn 'single-use' into 'multi-use'.
- Avoid single-use plastics such as drinking straws

## VIII. REPLACEMENTS FOR SINGLE-USE PLASTICS

### **Stainless Steel**

This material is durable and simple to maintain. It can be used to store drinks and re-usable food. This can surely replace the plastic tiffin meals as well as the single-use cups used for takeout.

### **Natural Fiber Cloth**

Natural fabric bags have been able to partially replace plastic bags in recent years, but not entirely. These won't shed plastic fibers when cleaned because they are composed of organic cotton, wool, bamboo etc.

### **Bamboo**

It is a rapidly expanding replacement for particular plastic things that have captured our kitchens. The drinking straws and tableware made of plastic may be replaced by this. This is compostable, lightweight, and strong.

## IX. CONCLUSION

A roadmap can be created when single-use plastics are prohibited. The transition to greener options could take some time. Circular thinking and waste administration systems can be strengthened in the interim to aid in the reduction of plastic pollution. The majority of us in the world are aware of how bad plastic is for the environment. But we effort to

ignore it and we find unawareness a total bliss. But we must recognize that each and every one of us shares responsibility for the loss of life among the aquatic creatures that are no longer able to breathe beneath the waters. Consequently, we ought to stop being accountable for the consequences and work to preserve what little there is of mother nature.

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