

Impact of Single Use Plastic and Its Subsequent Substitutes

Riddhisha Jain*

Integrated Bba-Mba Program, Nirma University, Ahmedabad, India

ABSTRACT

Plastic has been in the human civilization from the past two decades now. Hundreds of factories around the world are now competing against each other to gain an inch in the plastic industry. As it is said that 'necessity is the mother of invention', humans have stopped at nothing to make life easier, this has led to the development of various kinds of plastic. A predominant type of plastic, single use plastic, is being used by billions of people around the world without being aware of the danger it causes to the life on earth. Due to its cheapness and durability, it is being used and the due to the careless dumping of the single use plastic has led to the death of thousands of animals in the oceans. This leads to the question of the substitutes and alternatives in order to make sure that the human race and the animal kingdom survives and thrives in the future years. In this research paper, I have tried to find the alternatives and solution to the single use plastic and how to manage the already existing plastic debris that we humans have gave birth to. This research paper also contains a survey is related to the willingness of the people to adapt to the alternatives and the substitutes of single use plastic.

Keywords: Plastic Pollution, Single Use Plastic, Alternatives to Single Use Plastic, Solution for Already Existing Plastics

What are single use plastics?

Invented in mid-19th century, and gained popularity in 1970s, plastic has been superseded the traditional paper and glass staples, since then. The reason it superseded was owed to more durability, affordability and light-weightness. And since then, around 1950s, nearly 8.3 billion metric tons of plastic has been produced and the half of that is produced in the past 15-20 years alone.

This plastic is not only used in making of the surgical gloves, or straws for people with disabilities, but also in the packaging of the food items and other stuff. A study conducted in 2017, states that more than half of the non-fiber plastic belongs to single use plastic category.

Why is this type of plastic harmful?

Now, once this single-use plastic is used, it is thrown away in the bins and only nine per cent of these 9 billion tons of plastic is recycled. If we follow this pattern, it is estimated that around 2050, there will be around 12 billion tons of this plastic litter will occupy the landfills and will lie in the environment.

These plastics eventually end up in the oceans or the landfills. Mistaking them for food, the marine life ingested them. These are then transferred to animal tissues and then make an entry in the human food chain and turn it into toxic chemicals. The plastic that

ends up in landfills is eventually burned and it releases harmful gases like furan and dioxin.

When plastic enters in the ocean, instead of breaking down; it breaks up. When sun and heat are concentrated on these plastics, it gets divided into smaller and smaller parts until they are no longer 5 millimeters known as micro plastics [1].

The micro plastics are even found in the facial scrubs (microbeads) and in the fibers in the polyester clothing. They also find their way into the human body. When these are eaten by the animals or the humans, these cause fatal health issues like punctured organs or fatal intestinal blockages.

Alternatives for Single-Use Plastics

Stainless Steel

This material is tough and also easy to clean. It can be used for reusable food and for storage for beverage. This can also replace single-use cups that are used for takeout's and also can definitely replace the plastic tiffin lunches.

Natural Fiber Cloth

The recent years, natural cloth bags have been able to replace the plastic bags, but not enough. These are made from organic cotton, wool, hemp, or bamboo won't shed plastic fibers when washed.

*Correspondence to: Riddhisha Jain, Integrated Bba-Mba Program, Nirma University, Ahmedabad, India, Tel: 9420841308; E-mail: riddhijani2001@gmail.com

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Bamboo

It is a fast-growing replacement of plastic items especially that have captivated our kitchens. This can provide a replacement for the plastic tableware and drinking straws. This is lightweight, durable and also compostable.

Pottery and Other Ceramics

? Pottery & baked ceramic items have been in use for thousands of years & it provides durable & waterproof option for storing food and has proven as attractive tableware as well. The same was used in Indian households and traditionally mentioned in its culture. So, let's rejuvenate the same cultural heritage.

What can be done about the Already Existing Plastic Debris?

While we think of reducing and banning plastic from our lives, we also have to think about the waste we have already created and ways to tackle it. Many organizations in India alone are taking some steps to eradicate the already existing debris of the plastic. One of such organizations is based in the city of Pune, Maharashtra named Aarohana Eco Social Developments. This organization up cycles the plastic into handicrafts by taking the beautiful and creative path to fight against plastic [2].

Another startup dedicated to the same cause is based in Bengaluru, under the name of Green BUG. This organization is started by a husband-wife duo, after the realization that the plastic trash bags have no green alternative hit them. Now, this duo makes bin bags from old-newspapers and Maida (flour). They use Maida as an adhesive, instead of a synthetic one and two to four layers of newspaper, which supports a volume of 10 liters and 2 kgs of dry load. These bags are available online and merely cost Rs. 5.

The same work of finding an alternative to the plastic bin bags is done by Mr. Shailaja Rangarajan. He converts the tetra packs, torn jeans and other waste into bin bags [3].

What are Big Corporations doing for this noble cause of eradicating plastic?

The favorite place for beverages and snacks of the youth across

the world is undoubtedly McDonald's. This company has about 36000 outlets around the world. It generates, rather generated around 2.8 tons of plastic waste per year. But it has now taken a pledge to reduce it by replacing the plastic cups with paper ones and involving the biodegradable lids for their infamous beverages and also paper straws in place of plastic ones. The parent company of the famous Frooti and Appy Fizz, Parle Agro, has planned to achieve a rate of 100% recycling of the packaging waste they make.

The prestigious software company like Microsoft has also implemented the paper-first design principles in order to eradicate this plastic waste and killing the manufacturing of it. It also encourages recycling and has made a statement to use less paper in the first place. Another software company, Google Inc. has made sure that by 2022; it would only make products using recycled materials and also will maximize the recycling content [4].

What are bio plastics?

It is a known fact that plastics have been derived from petroleum and it affects the environment in many perilous ways. But what if we get all the positive qualities of plastic and not the affect the environment? Wouldn't it be a miracle?



The scientists have indeed given a gift to the mankind by the means of bio plastics. These bio plastics, instead of deriving from petroleum, are derived from bacteria or plants that are genetically modified. These plastics are biodegradable and are eco-friendly in nature. Though these plastics are expensive and low yielding, there is ongoing development for improving this with the help of genetic engineering.

Statistics of the Survey Conducted

When people were informed about the danger they are living in due to plastic, and when they were provided with the alternatives for the same products as plastics the following has been reported:

As indicated by the (Figure 1), people are more tending to opt out of single use plastic for stainless steel, around 76.89% of the people who took the survey were happily ready from plastic takeout's and storage items to the stainless-steel ones. Around 60% of the people are ready to change from plastic toothbrush to a bamboo toothbrush. Only 30% of the people are ready to change their plastic bottles for a soil made ones. 40.56% of the people look out to tend towards natural fiber cloth instead of the plastic made.

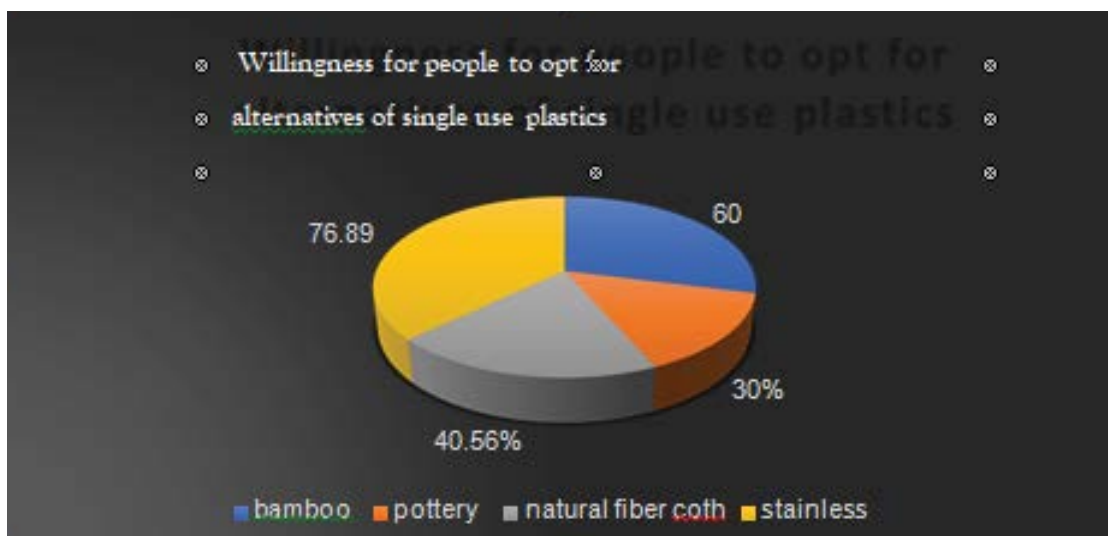


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CONCLUSION

We, most of the people of the world are aware of the ill-effects of plastic and its pollution. But we try to ignore it and we find ignorance a total bliss. But we have to accept that each and every one of us is responsible for the deaths of the marine animals that are no longer breathing under the oceans. Therefore, we should outgrow to be responsible for the effects and we should try to protect what is left of the mother nature. One can just move on from plastic to

various other alternatives that are now easily available to us. We should also try to support the activities of other people who try their best in order to make our tomorrow a better one.

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