



Plastic: A Great Menace For Earth, Environment And Mankind.

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Abstract:- We all know that Plastic is the biggest threat to this planet Earth. Yet this grave issue is not taken seriously by the public. In India alone, 3.5 million tons of plastic wastes are getting generated every year.⁴ According to a report of 2021, in India, plastic waste generation has increased almost more than double in the last 5 years.¹ Waste production of plastic is increasing every year at the rate of 21.8%. Not only in India, the conditions have become severe all around the world. According to IUCN Report, the whole world is producing 300 million tons of plastic waste, of which above 14 million tons of plastic waste is going in the ocean.³ So, there is a very strict need to control the use of plastic and to minimize its use until it is utmost necessary. The present paper deals with this menace in brief and also sheds light on the efforts going on in National, International, Individual and community level to fight this menace.

keywords Plastic, Non-biodegradable, Bio-friendly alternative, Incineration, climate change.

Introduction: Today, plastic has become a greatest threat to the environment, on to the living world and the whole planet. The use of plastic has incorporated in our day-to-day life as an essential and accessory integral need. But as they are non-biodegradable and takes a lot of time to decompose so, their disposal and management becomes a grave problem for all of us. It is one of the biggest problem mankind is facing today. So, there is an urgent need to reduce its usage to a minimum, otherwise the scenario on this Earth will be horrifying in upcoming years. The present paper is trying to focus on this grave issue to create awareness and urgent need of actions to reduce it at grassroot level. The efforts must be started or initiated from individual level to State, Central, National and international forum. But present efforts going on all these levels are not enough to fight this menace. The data of plastic garbage waste accumulation is horrifying. In India alone, 3.5 million tons of plastic waste are getting produced every year. According to a report of 2021, in India plastic waste generation has increased almost more than double in last 5 years.¹ Waste production of plastic is

increasing every year at the rate of 21.8%. This is not only the situation in India, rather the picture is more horrible for other countries Internationally. According to IUCN Report, the whole world is producing 300 million tons of plastic wastes of which above 40 million tonnes of plastic wastes are going to ocean.³ If the situation continued for next 3 years, the amount of plastic in oceans will be greater than fishes.

So, mankind today has a big challenge to look for a safe and harmless technique for its disposal along with fundamental efforts of 3 R (Reduce, Reuse & Recycle) from every individual. We are also facing a challenge to search for an alternative, which may be eco friendly and easily biodegradable. Out of 8.3 billion tons of plastic generated since 1950s, 79% out of total were dumped in landfills or were leaked into the environment. Virtually, there is no place on Earth from Mariana Trench to Mount Everest, which is left untouched by plastic. It has now been so ubiquitous in this environment that micro plastics have been found in milk produced and blood of so many cattle and fishes. Of all the plastic that ever existed, 91% of the total and more than half generated in past 15 years have never been recycled.

Plastic production and industry: A small scenario around the world

Plastic garbage accumulation is an aggressively growing marvel. Yearly Worldwide plastic generation has detonated over the past decade, going from 5 million metric tons (MT) in 1950 to a bewildering 368 million MT in 2019. It is anticipated to touch 2000 metric MT by 2050 if it is not controlled. This progressing boom of plastic generation is firmly connected to its dependence on fossil fuels and major ventures in petrochemical frameworks in key districts of the world, whereas 99% of plastic materials are created from fossil feed stock, as these businesses are closely associated. Covid-19 pandemic has also aided its production as there was a huge demand of disposable mask, gloves, prevention kits and other protective equipment.

Life cycle impact of plastic:

Plastic has embedded in every aspect of life globally. Each phase of life cycle bears repercussions for individuals and the environment. In spite of the fact that a few open considerations have been drawn to plastic waste, an activity to anticipate spillage of microplastic and chemicals into the environment from insufficient and poor dumping is the necessity of the hour. We now need to focus on cross cutting of plastic production, extraction, manufacturing and disposal. Plastic goods are not simply the plastic particles but they also become more toxic due to added chemicals, most of which are very harmful for the environment and the mankind. So, when we are appraising the impact of plastic, it is paramount to take into account plastic debris, micro and Nano-plastic including chemical additives. Plastic pollution and disposal illustrate triple planetary crisis- Health problems, Biodiversity loss and Climate change. Actually, all these impacts are interlinked and cross sectorial, influencing people and the environment in many ways.

Plastic: Impact on ecosystems and biodiversity

As plastic is persistent and not easily disposable and degradable, so plastic pollution is a significant threat to bio-diversity. It debilitates ecosystems, animal and plant species hindering their capacity to provide basic services to humankind. The consider of spillage of plastic into the ocean and its consequent effect on marine life presents an exceptional and ghastly picture. It is moreover enormously influencing fresh water and Terrestrial environment. In fact, plastic and chemical spillage into the environment emerges at different levels of plastic life cycle and toxins produced are transported around the globe through air and sea streams. Environment corruption happens starting from the upstream, as extraction, fracking, generation of plastics and chemical added substances discharge considerable sum of harmful substances into the air and sully the neighbouring environment. Disposal is additionally risky as their burning discharges poisonous chemicals, micro and Nano-plastics into the air, whereas landfills sully soil and water. Soil becomes infertile and land becomes barren. Hence, all these components affect both globally and locally.

Plastic and climate change

As 99% of plastics are made from fossil fuels feed stocks, plastic contamination is firmly connected to the fossil industry. Petrochemicals are anticipated to become the biggest driver of Worldwide Oil demand growth from present up-to 2030. Greenhouse Gasses (GHG) are released all through the plastic life cycle, in this way debilitating the capacity of the Worldwide Community to keep Worldwide temperature rise underneath 1.5 degree Centigrade. The accelerated Global development of the plastic industry, generally fuelled by Natural Gas, undermines endeavours to decrease carbon contamination and thwarting of a climate catastrophe. Assessment show that GHG emission from plastics may reach almost 13% of the whole remaining carbon budget by 2050 (CIEL, 2019).²

Plastic and Human Health

This is often one of the foremost facets of plastic contamination as people are exposed to a huge assortment of harmful chemicals and microplastic through direct skin contact, ingestion, and inhalation throughout the plastic life cycle.

Concurring to WWF, a normal human being ingests roughly 5 grams of plastic each week.⁶ Though the minor health impact of plastic is expanding day by day, research in this direction clearly indicates that the toxic chemicals and pollutants released due to misuse of plastics are creating serious health hazards also. Hormone alteration related diseases, Cancer, Infertility, Autism, Neuropathological disorders like ADHD etc are some of the most commonly visible. The plastic nanoparticles lead to cellular metabolic reactions causing Inflammation, Genotoxicity, Oxidative Stress, Apoptosis, Necrosis, which in turn causes Cancer, cardiovascular diseases, Inflammatory Bowel diseases, Diabetes, Rheumatoid Arthritis, Auto-immune diseases and Neuro degenerative diseases.

How to combat this Menace?

“Beat plastic pollution” was the theme of World Environment Day 2018 and India was the Global host for that Summit. Although it sounds great, but we still have a long way to go when the issue of combating this giant menace i.e., Plastic. Because plastic has become an integral part of our daily life, it's often difficult to even think of trying to remove it completely. Nasty heaps of plastic choking the drains, water bodies and rivers is a common sight. The most terrifying fact is that plastic products take around Thousand Years to totally degrade. This means every single bit of plastic produced so far still exist in some form, either in the air we breathe, the food we eat or the water we drink. In India, this menace has become grave issue of everybody's concern. Right now, Indian cities generate near about 56 lakhs metric tons of plastic wastes annually, out of these wastes, the National Capital alone accounts for 9600 metric tons per day. Moreover, 70% of total plastic consumption in India is thrown away as wastes, which is a herculean task for authorities to perform. So, the very first effort starts at an individual level, then on community level. The State and Central governments should come out with strong legislations and strict measures to control it at the earliest with all dedication. At individual and community level, every person should pledge-

- To reduce single use plastic rather not to use it completely.
- Recycle properly each and every bit of plastic.
- Participate or to organise nearby water body like ponds and river clean up.
- Stop the use Plastic Water bottles and microbeads. A data says, about 4000 plastic bottles are getting used every second.
- Support legislation to curb plastic wastes.
- Cook more and pack a litter free lunch.
- Buy in bulk.
- Support a bag tax or bring a reusable grocery bag.
- Most important is to follow a simple life style as our ancestors do with minimum procurement from Nature.
- As small changes in our life style can bring us huge benefits in fighting this menace.
- Today Environmentalists and Researchers are facing a big challenge in looking for its alternative, which has to be both eco-friendly and easily biodegradable. In North Eastern India, bamboo is coming up as an option to some extent for single use plastic. Potato, Sweet Potato, Jute like substances in some areas are coming up as an option for single use plastic but this is not enough. We have to look for more options with broader replacement of plastic.
- There is need to look for an alternate for fossil fuels as this is the biggest place for plastic generation. Green energy like Solar, Tidal and Hydel energy may be the options.

National and international efforts

The United Nation Environment Assembly collectively concurred to create legitimately authoritative settlement to eradicate plastic contamination, taking world's most aspiring environmental action since 1989 to March 2022.⁵ This adopted UN resolution sketches the advancement of a settlement that permits Worldwide rules and commitments over the complete life cycle of plastic and negotiations are over for next

2 years to cut the plastic waste at least to 75% at all levels. Nik Sekharan, WWF chief conservation officer said, “We all have to be dedicated to end plastic pollution and we are working with civil societies and government businesses to meet the pledges laid out in this remarkable framework”.⁷ In India, a strict ban has been imposed on single use plastic in a foot to tackle this menace. The ban includes straws, cutlery, ear buds, packaging films and many other products. GSA contains a objective of redirecting a least of 50% of solid wastes away from landfills and burning, through Reuse, Recycling and Composting. GSA keeps tracks of the volume of solid waste redirection process.

We must know that India is among Top 10 countries in the world in plastic waste production although India, China, Philippines, Brazil, Nigeria, Tanzania, Turkey, Egypt, Bangladesh were the first to ban single use plastic in 2002 only. In India complete ban was legislated in 2019, following World Environment Day resolution of beat plastic pollution. But it came in action from first July 2022. Enforcement of any legislation is most crucial key for the ban to be effective. In India, 79% of plastic waste is dumped in landfill, 12% goes for incineration and only 9% is recycled. Of this 9%, only 1% is getting recycled more than once. This must be encouraged at all levels from individual to community up to government level. Some measures which we can easily follow in our habits in our society may be –

- Commercial recycle bins should be added to public areas.
- Every individual should be educated on the need of recycling plastic.
- Local communities should set recycling goals by creating recycling teams.
- Children at school level should be taught to recycle. In Bhutan every citizen has to give two hours time every Sunday morning to clean their neighbourhood and roads along with nearby parks.
- For effective Recycling, what can and cannot be recycled, must be screened at home level.
- By purchasing products which have high recyclable value.
- Not dumping the Goods in garbage, rather donating it to the needy people in the society.
- Saying absolute **No** to single use plastic can prove an effective tool for cutting down plastic wastes.

So, a community's and government's commitment for a clean and plastic free environment is an utmost need for today's world and this also reflects their commitment to a higher quality of living for a sustainable future of mankind and planet.

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