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Plastic Pollution: - Impacts On Eco- System Services

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Abstract:

Accumulation of plastic products in the Environment that adversely affects wildlife, wildlife habitat or humans is a major concern for the governments now.

Plastic production and accumulation in the natural environment are occurring at an unprecedented rate due to indiscriminate use, inadequate recycling and deposits in landfills.

Chlorinated plastics can release harmful chemicals into the surrounding soil, which can then seep into ground water or other surrounding water sources. This can cause serious harm to the species that drink that water.

Animals can be significantly harmed or killed by plastic pollution. Plastic pollution has potential to poison animals which can then affect human food supplies.

Plastic waste management through community involvement and socio-economic inputs in different countries are presented and discussed. Plastic ban policies and public awareness are likely the major mitigation interventions.

Keywords: Plastic, ecosystem services, climate change, pollution.

Introduction: In the world we have a very important and rising epidemic known as Plastic Pollution. Plastic Pollution is when plastic items and products made using plastic accumulate in the environment Plastic pollution does not only happen on land it also happen in ocean . Plastic pollution is very harmful to the wild life and the environment and also damaging marine and land animals.

Research has shown:

1. Every year nearly 1.1 Million marine birds and animals are being killed by plastic.
2. 2 Millions Plastic Bags are used every day in worldwide.
3. More than 5 trillion pieces of plastic are floating in oceans.

What is Plastic?

Plastic is a synthetic material made from various organic polymers like Polyvinyl Chloride (PVC), Poly Ethylene, Nylon etc., which can be moulded into different shapes and forms.

The first synthetic plastic – Bakelite was produced in 1907, making the beginning of the global plastic industries.

Chemicals in Plastic:

1. Polyamides (PA) (Nylon) – Fibers, Toothbrush Bristales, Fishing line.
2. Polyvinyl Chloride (PVC)-Plumbing pipes and guttering, shower curtains, Window frames.
3. Polyurethanes (PU) – Cushioning foams, thermal insulation foams, surface coatings
4. Polycarbonate (PC) – Compact Discs, eye glasses, security windows, traffic lights, lenses.
5. Polyvinylidene (PVDC) – Food packaging.
6. Polyethylene (PE) – Wide range of inexpensive
7. Uses including super market bags, plastic bottles.



Source: www.shutterstock.com

Plastic Pollution: Plastic has become one of the most used substances. It is seen everywhere from supermarkets to common household. The main reason for the increasing demand of plastic is that it is very cheaper than other alternatives like paper and cloth. Plastic is the only substance that cannot be destroyed or burnt. It is neither dissolved in water nor decomposes into the Earth. Its remains on the surface of the earth for endless because it is not destructible material. Once it creates cannot be destroyed, only with the process of recycling we can use it again thereby we can mitigate the adverse effect.

1. **Impacts of Plastic Pollution:** It can alter habitats and natural processes, reducing eco systems, ability to climate changes, directly effects on human health
2. **Effects on Eco System:** Plastic Pollution causes harm to human, animals, plants through toxic pollutants. It can take 100 or 1000 of years for plastic to break down so the environmental damages long lastings. It affects all organisms in food chains from tiny species like Plankton through to whales.
3. **Climates change:** Plastic is one of the most persistent pollutant on earth , at every step in its life cycle even long after it has been discarded, plastic create Green House Gas Emissions that are contributing to the warming of our world .

4. **Plastic Pollution in Marine:** The most visible impacts of plastic debris are the ingestion, suffocation and entanglement of hundreds of marine species. Marine Wildlife such as sea birds , whales, fish and turtles mistake plastic waste for prey, most then die of starvation as their stomach become bleed with plastic. Furthermore, Plastic absorb pollutants that are floating around the oceans, they contain harmful chemical themselves. There is now 5.25 Trillion Macro and Micro pieces of plastic in ocean and 46000 pieces in every square miles of ocean, weighing up to the 269000 tons. Everyday around 8 million pieces of plastic makes their way into ocean. So these types of pollution threaten food safety and quality, human health, coastal tourisms.



Source: Reuters.com/world/exclusive



Source: Britannica.com/science/plas

5. **Plastic Pollution upon Animal Health:** 90 % animal and birds are consuming plastic. Birds and animals cannot digest or pass plastic once it's in their digestive system. Therefore its clogs up their digestive tract, giving the feeling of being full (since there's no room in their stomachs) but without any of the essentials nutrients they need. They basically starve to death with a stomach full of plastic.
6. **Plastic Pollution on Land:** UNEP'S experts explain that over time, big pieces of plastic can break into shards less than 5 mm long and seep into the soil. This Micro plastic can change the physical structure of the earth underfoot and limit its capacity to hold water. They also can affects plants by reducing root growth and nutrient uptake.
7. **Plastic Pollution effects on human health:** The adverse effects of plastic are particularly acute children in the womb and young ones, with increased risk of prematurity, stillbirth, and birth defects of the reproductive organs, neurodevelopmental impairment, impaired lung growth and childhood cancer. (Reference from – Minderero –Monaco Commision on Plastic and Health, 2023)
8. **Impact of plastic on fresh water:**
- a) Plastic wastes dumped in water courses, contaminate and poisons fresh water life.
 - b) On leaching in water, plastic can easily enter the human food chain and harm human health.



- c) Plastic debris clog the sewage drains and create stagnant water which will be an ideal habitat for mosquitoes and other parasites.
- d) Choked drains were flooding during monsoons.

Conclusion: We have seen how plastic pollution is increasing day by day due to its non-bio-degradable nature, use of it are responsible for various damage to the environment. In today's modern life use of it become fashionable irrespective of understanding its harmful effects. If such person gets an understanding of his responsibility to curb plastic pollution then only we can save our environment from pollution. To minimize the damage to the environment we should be careful in our practices and use of plastic.

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