

Environmental Effects of Plastic Pollution and Solutions

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Editorial Note

As the world's ability to deal with the increasingly rising development of disposable plastic goods overwhelms the world's ability to deal with them, plastic waste has become one of the most pressing environmental issues. Plastic contamination is most noticeable in developing Asian and African countries, where garbage collection systems are often ineffective or non-existent. However, the developed world, especially in countries with low recycling rates, has difficulty collecting discarded plastics properly. Plastic trash has become so pervasive that plans are underway to draught a global treaty that will be signed by the United Nations.

No one knows how long it takes for plastic to degrade, but it is thought to take hundreds or even thousands of years. The ecosystem is affected not only by the accumulation of plastics, but also by the fragments and toxins emitted during photo-decomposition, which pollute our soil and water. Some plastics, such as Oxo-Degradables, are designed to degrade rapidly and although they can become less visible over time, they are still present in the environment. Plastic particles, for example, are taken in by filter-feeding species in ocean ecosystems. Animals higher up the food chain will bioaccumulate greater amounts of plastic when tiny plankton eat it. As a result, although some plastic is built to degrade rapidly, it remains in the environment. Invasive species that damage ecosystems may use floating plastic waste that can endure thousands of years in water as a mode of transportation.

Harm to wildlife

Plastic kills millions of animals every year, including birds, fish and other marine species. Plastics are known to have harmed nearly 700 animals, including endangered species. Plastic is eaten by almost every seabird species.

The bulk of animal deaths are due to entanglement or malnutrition. Abandoned fishing gear or discarded six-pack rings strangle seals, whales, turtles and other species. More than 100 aquatic animals, including fish, shrimp and mussels bound for our dinner plates, have been found to contain microplastics. In certain cases, these insignificant particles move through the digestive system and are removed without causing any damage. Plastics, on the other hand, have been found to have clogged digestive tracts or pierced organs, resulting in death. Plastic-filled stomachs inhibit the ability to feed, contributing to malnutrition.

Elephants, hyenas, zebras, lions, camels, goats and other large mammals have eaten plastics, which has resulted in death in some cases. Tests have also revealed liver and cell damage, as well as reproductive

system disturbances, which have caused some animals, such as oysters, to produce fewer eggs. According to new findings, larval fish consume nanofibers as early as their first days of life, raising new concerns about the impact of plastics on fish species.

Many scientists and conservationists, including the National Geographic Society, believe that the solution is to keep plastic waste out of rivers and seas in the first place. Improved waste management and recycling, better product design that considers the short life of disposable packaging and a reduction in the production of unnecessary single-use plastics may all help.

Lifespan of Plastic

Landfills have been the standard method for solid waste disposal for years, since they are packed with specialised microbes and enzymes modified to break down garbage. Plastic materials that take hundreds of years or more to biodegrade are now overburdening landfills.

Lifespan of these popular plastic products

- Plastic Water Bottle - 450 years
- Disposable Diapers - 500 years
- Plastic 6-Pack Collar - 450 Years
- Extruded Polystyrene Foam - over 5,000 years

Plastics have encouraged creativity and convenience in almost every aspect of American life by being versatile, robust and durable. Plastic is a popular and affordable alternative for many Americans, from medical supplies to food storage containers. Plastic, on the other hand, is not without defects. Plastics with solid polymers are highly resistant to natural biodegradation. This means that conventional plastic items can last hundreds of years, if not forever, in landfills.

Solutions for Plastic Waste

About 85% of plastic waste is disposed of in landfills, where it can take hundreds or thousands of years for plastics to decompose. The solution to the 32 million tonnes of plastic waste that ends up in landfills every year is to develop a waste solution that can biodegrade rapidly in landfills. EcoPure is a plastic waste solution that has been shown to speed up the biodegradation of plastic waste in landfills, where the majority of plastics end up. EcoPure is an organic plastic additive that can be quickly integrated into the production process of plastics. EcoPure attracts landfill bacteria, which coat plastics with a biofilm coating. Other ingredients in the biomass broaden the molecular structure, allowing microbes to send out chemical signals, attracting more microbes. Microbes break down plastic polymer chains at a faster rate as a result of this process, as shown by ASTM D5511 testing.

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