Plastic Earth | Deccan Herald -

Plastic Earth

The Green Goblin

Harini Nagendra,

- JUL 30 2023, 00:24 IST
- UPDATED: JUL 30 2023, 02:53 IST

Harini Nagendra: the Azim Premji University Prof prides herself on barking up all trees, right and wrong. Credit: DH illustration

We are still recovering from the effects of the Covid-19 pandemic. An alarming recent paper published in the Proceedings of the US National Academy of Sciences estimates that the oceans contain 1-5 million tons of plastic. Anywhere between 82-358 trillion tiny pieces of plastic are on the ocean's surface, mostly produced after 2005, when the amount of plastic produced in factories across the world began to grow exponentially.

But what does this have to do with the pandemic? When tiny bits of plastic floating on the water agglomerate in large clumps, they attract microorganisms that feed on plastic – viruses, bacteria, fungi – many of them pathogenic, causing diseases and infections. Scientists call this the 'plastisphere' – as the Earth is a biosphere that supports life, these microplastic agglomerations support a set of life forms that can be very harmful to humanity. The tiny bits of microplastic are so light that they can be carried by air and water currents over long distances, making their way into animal and plant bodies (including our own), disrupting our immune system and creating conditions ripe for new

kinds of diseases to spread. Already, scientists at the Marine Biological Laboratory have found new, dangerous strains of cholera-causing Vibrio bacteria growing on these plastics.

The United Nations Environment Programme (UNEP) estimates that close to 1.5 billion plastic bottles are purchased every day, and 5 trillion plastic bags are used every year. At least half of these are single-use – discarded, landing up in waste dumps and on riverbeds, eroded by wind and water to microplastics, ending up in the ocean to add to the growing plastisphere. In 2022, at a meeting of the United Nations Environment Assembly, governments adopted a resolution to halt plastic pollution – but this has yet to become an enforceable treaty.

Also Read | Clean up pollution control board

Many of us may not know the link between plastic pollution and climate change – but 98% of all plastic is produced from fossil fuels. By 2040, UNEP estimates that greenhouse gas emissions from plastic – through its lifecycle, all the way from production to disposal – will account for close to 20% of global carbon emissions. Less than 10% of all the plastic produced so far has been recycled. The rest is burnt, leading to tiny bits of microplastic suspended in the air – which we breathe – or thrown into garbage dumps, ending up in the oceans, and in the food and water we consume. Indian scientists have documented large amounts of microplastics in the Bay of Bengal, and in a growing list of rivers that includes the Brahmaputra, Ganga, Indus, Sabarmati, Adyar and Sharavati.

India is the second-largest generator of plastic waste, second only to the US. Scientists from the National Centre for Coastal Research are experimenting with using floating barricades to trap and hold the plastic at the mouth of the rivers, to prevent plastic trash from entering the ocean. But toxic chemicals leach out of these plastics into the waters, and they can’t be trapped by barricades. Microplastics have even been found in human breast milk these days. When even mother’s milk is contaminated, what is safe to consume?

Plastic is cheap and convenient, but ultimately, we pay a steep price for this convenience. What’s the way out? It is difficult to recover, degrade and recycle plastic – we need to focus on producing less. So much of the stuff we order online these days, or purchase from shops, comes with plastic packaging. UNEP estimates that the most common plastic waste on beaches comes from cigarette butts – but then, there is an endless list of other sources, including plastic bags and bottles, milk packets, ice cream tubs, chips packets, and shampoo bottles. We can’t fix this by individual limits on use -- national bans and international treaties need to enforce limits on plastic production.

Alongside, we also desperately need technologies to help us safely process and treat the toxic, pathogenic plastisphere that grows in size each day. If we don’t, it will grow to consume the world.