

MICROPLASTICS

Prelims: Environment- Pollution & Waste management

Mains: GS-III- Conservation, environmental pollution and degradation, environmental impact assessment.

Context:

- ▶ Tiny particles of plastic, known as microplastics, have been found in the **Arctic region and the Alps**, carried by the wind, according to a new study that was widely reported this week. The study called for an urgent assessment of the risk of inhalation of the microplastics.

**What are Microplastics**

- ▶ Microplastics are tiny plastic particles up to 5mm in diameter.
- ▶ In the last four decades, concentrations of these particles appear to have increased significantly in the surface waters of the ocean. Concern about the potential impact of microplastics in the marine environment has gathered momentum during the past few years.

Research Findings:

- ▶ The researchers found huge amounts of them in the Arctic snow;

- ▶▶ their study claims to be the first that contains data on contamination of snow by microplastics. Several other recent studies have established the presence of microplastics in groundwater in the United States, and in the lakes and rivers of the United Kingdom.
- ▶▶ A study published in June estimated that the average human ends up consuming at least 50,000 particles of microplastics in food every year.

Where they come from

- ▶▶ Microplastics are either manufactured — for instance, microbeads that are used in cosmetics and beauty products — or they are formed when larger pieces of plastic break down. The small, shiny particles advertised as “cooling crystals” in certain toothpastes qualify as microplastics if the ingredients of the toothpaste mention “polyethylene”.
- ▶▶ Even so, manufactured microbeads are not a major contributor to microplastic pollution. One of the main contributors to this pollution, instead, is plastic waste, 90% of which is not recycled. Plastic bottles, bags, fishing nets, and food packaging are some examples of the larger pieces that break down into microplastics, eventually finding their way into the soil, water and the air we breathe.

Medium

- ▶▶ There are just two possibilities, he noted: “from the water or from the air.”
- ▶▶ While it’s known that microplastics and other plastic debris is transported by ocean currents, scientists have become increasingly convinced that small plastic fragments are also being carried through winds and precipitation.

Action by countries:

- ▶▶ In the recent past, several countries have passed laws to limit the amount of microplastics in the environment. The United States passed a law in 2015 to prohibit the manufacture of rinse-off cosmetic products containing plastic microbeads.

Plastic consumption in India:

- ▶▶ Average Indian consumes approximately 11 kg of plastic products in various forms every year. Though it is much less than what an American or a Chinese does, it still is a problem.

Microplastic in Body

- ▶▶ Scientists say plastic particles can reach our stomach, and depending on their size, these plastics are either excreted, get entrapped in stomach and intestinal lining or move freely in body fluids such as blood, thereby reaching various organs and tissues of the body.
- ▶▶ While a number of studies have shown negative effects of plastics on nervous system, hormones, immune system together with cancer-inducing property of plastics are already well known, scientists are now trying to understand how the basic machinery of body interacts with plastic particles.