

TERI to study microplastics, froth in Yamuna

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New Delhi: The Energy and Resources Institute (TERI) in a first-of-its-kind detailed study will analyse the presence of microplastics in the Yamuna and groundwater in Delhi and assess the source and cause behind the frothing in the river in certain seasons.

After completing the study, TERI will provide remedies.

Scientists at TERI said that the study, proposed by Delhi govt in Dec 2021, will take a year. The aim would be to identify and prioritise groundwater sources (aquifers) and to map resources based on microplastic concentration. Scientists at TERI said the study would be done as two projects: the first on the froth in the Yamuna, the second on the microplastic in the river and groundwater.

"The idea is to assess why the froth is so visible during Chhatt Puja in winters. We will investigate the reasons for its occurrence, possible sources and chalk out a short, medium and long-term strategies for mitigation. For microplastics, the objective is to know the sources and reasons for the presence of microplastics in the Yamuna, identify the hotspots across the Yamuna stretch, and in the groundwater. We are now recruiting the team and developing a strategy," Nupur Bahadur, associate director of the circular economy and waste management division at TERI, said.

Bahadur pointed out that the presence of froth is a phenomenon seen across the globe. "But in Delhi, it's more visible due to more public attention. What we have understood so far is that organic pollutants majorly come

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from untreated sewers, untreated industrial effluents, illegal or unauthorised establishments without a sewerage system.... So, untreated water with phosphate, organic content, ammonia and the presence of hyacinth, as a combined effect cause frothing. The organic matter causes eutrophication in the water body, making green moss-like plant growth so the water cannot freely flow. We see this particularly along the Okhla barrage and Kalin-

di Kunj as the barrage has height and when it falls, it gets churned, and we see froth at the surface. With the climate being cold during festivals like Chhatt, the disappearance of froth is at a lesser rate," Bahadur said.

She added that had the Yamuna been cleaner, the froth would have flowed naturally. "We have identified hotspots like ITO, Kalindi Kunj and some STPs like Okhla where sewage treatment is inadequate. We will have to see how the sewage is being treated. There are also some dhobi ghats, some industrial areas with effluent treatment plants and some unauthorised colonies that will need special attention," she said.

Speaking of microplastics, a pollutant which is now being assessed in water in many developed countries, the scientist said that sample collection for scientific analysis will begin soon.

"Microplastics are the segment or fragment of large plastic pollutants that have reached waterbodies. They are less than five microns in size. We have started the identification of various locations across 11 districts in Delhi to test the groundwater, and some spots in the Yamuna as well. The microplastics need optical microscopic studies and also spectroscopic studies. To assess the size, microscopic studies will be done, while spectroscopy will be used to understand their character, like if they are polyvinyl, polychloride, polyethylene, polypropylene, PET, etc. For this, we will also use a third-party lab. The samples will be taken for pre-monsoon May to June and post-monsoon which is Oct to Nov. After that, it will take 2-3 months to analyse the samples and get results by April 2025," Bahadur said.