

Indian Institute of Technology-Bombay's (IIT-B) N-Treat Technology

July 27, 2022

In news— Brihanmumbai Municipal Corporation (BMC) has planned in-situ treatment of sewage from the drains with the help of Indian Institute of Technology-Bombay's (IIT-B) N-Treat Technology.

What is N-Treat Technology?

- N-Treat is a **seven-stage process for waste treatment that uses screens, gates, silt traps**, curtains of coconut fibres for filtration, and **disinfection using sodium hypochlorite**.
- According to the detailed project report for N-Treat, it is a **natural and environment friendly way for sewage treatment**.
- **Its set up takes place within the Storm water drains or nullahs channels**, that is through the **in-situ or on-site method of treatment**, and does not require additional space.
- N-Treat **technology was devised by SINE IIT Bombay Company** or the Society for Innovation and Entrepreneurship, an umbrella organisation at IIT-B.

How does it work?

The technology involves following **seven-stage process for waste treatment-**

- **The first stage involves screening to prevent the entry of floating objects** such as plastic cups, paper dishes, polythene bags, sanitary napkins, or wood.
- IIT-B has proposed to install three coarse screens, the

first with 60 mm spacing for removal of large floating matter, the second with 40 mm spacing, and the third with 20 mm spacing.

- **The second stage has proposed construction of a silt trap**, which creates an inclination and 'parking spot' on the bed of the nullah for sedimentation.
- **The next three stages are installation of 'bio zones'** in the form of coconut fibre curtains that will act as filters and promote growth of biofilm to help in decomposition of organic matter.
- **A floating wetland with aquatic vegetation** planted on floating mats has been proposed.
- Aside from a floating bed on the surface, IIT-B has proposed suspending **floating rafts vertically, called florafts**.
- According to its proposal, their **hanging roots would provide a large surface area for passive filtration** as well as development of microbial consortium.
- In the floating wetlands, plants acquire nutrition directly from the water column for their growth and development, thus reducing the organic as well as inorganic pollutants.
- **The final stage for sewage treatment will include disinfection using sodium hypochlorite**, to kill the bacteria in the water.
- **The floating matter will be removed daily, silt deposits from the silt traps will be removed once in four months**, and plants will be trimmed as required.
- The floating matter collected every day will be disposed of at the nearest municipal waste collection point daily.

This project will deal with the collective water flow of 1,11,150 kilo litres of water per day from the 25 nullahs, having an overall length of 2.9 km. The project will take place over the next five-and-a-half years, and the first six months will be required for installing the equipment.