



# Report of Clean Water and Sanitation



## SDG 6

### Waste Water Management

For management of water resources, MAHE scrupulously adheres to the 3 R's: Reduce, Recycle, Reuse. Three sewage plants set up and maintained by MAHE treat the waste water generated in the campus. These have a combined capacity to treat 6,500 cubic meters per day. Treated water from these plants are fully utilized for gardening and arboriculture.



**REDUCE**



Inlet flows are installed to reduce water wastage



**RECYCLE**



80% of all water used is treated in the wastewater treatment plant



**REUSE**



All the recycled water is reused for gardening and arboriculture

In addition, a sullage treatment plant of 330 cubic meters per day capacity, treats grey water from the treatment plant which is re-circulated to the flush system in few hostel blocks.

### Rainwater Harvesting

Rainwater collected from roof tops connected to existing down-takes leading to a common header flows through a filter. The filtered water is then led to a nearby sump and then piped for domestic use. This scheme adopted covers a catchment area of 27, 250 square meters. For recharging dry bore wells, a pit is excavated around the bore well and a filter medium is filled into the pit. Storm water drains and roof top rainwater pipes are diverted into this pit. The water gets filtered and recharges the bore well.



This has been adopted in 11 locations around the campus leading to increase in water table and self-sufficiency during water stressed periods. Recently an artificial pond has been created on campus to further aid in ground water penetration.



### Solar Water Heaters

Manipal, on coastal Karnataka, has an abundance of sunny day's right through the year, except during the monsoons. Thus, solar powered heaters are exclusively used for our heating requirements. Currently, the total installed capacity of solar heaters is four lakh litres per day thus reducing conventional energy use for heating.

### Water usage

Manipal Academy of Higher Education has been a leader in promoting Environmental Sustainability and has been recognized by multiple agencies.

- Golden peacock environmental management award for 2012, 2013, 2014 -MAHE.
- Third most clean campus in India & Most clean campus in the southwest region– Manipal Institute of Technology, Manipal by AICTE clean campus award 2017.
- Green Apple International silver award, for environmental best practices -2018 & Green World Award 2019 –Gold -MAHE.
- Ranked No 1 in India and 125th in the world -2019 -MAHE by the UI Green Metric World University Ranking.
- A PHI Health care excellence award 2019 – Kasturba Hospital, Manipal- for Green Hospitals



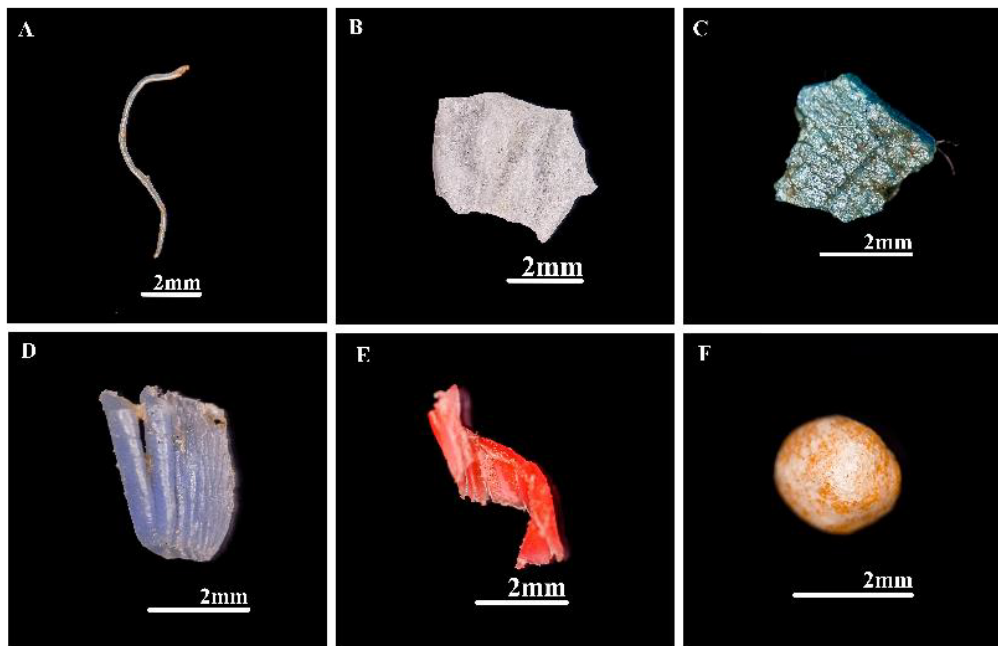
Water kiosk is installed in all buildings, which is used by MAHE staff, students as well as visitors.



Glass bottled water is supplied to all units of MAHE during any events or meetings, which is recycled and reused.

### Environmental Microplastics Group

The Environmental Microplastics group at the Department of Civil Engineering, Manipal Institute of Technology (MIT), MAHE is concentrating on the impacts of microplastic pollution on rivers, estuaries, lakes, beaches, soils, and mangrove systems in coastal Karnataka and Kerala. The group is trying to assess the abundance, distribution, and degree of degradation of microplastics in the various compartments of these environments. This will help in identifying plastic hotspots and develop strategies to control plastic pollution at its starting stage itself.



Microplastics (fibres, fragments, foam, and film) found in the beach sediments of St. Mary's Island.

### **In-house packaged drinking water**

MAHE has been constantly adopting latest technology in campus operations with due consideration to the environmental impact. Single use plastic is an area of concern and MAHE has banned the use of single use plastic carry bags, paper cups, plates etc. in the campus. MAHE has reduced the use of conventional packaged drinking water in the meeting venues and substituted it with filtered water served in glass tumblers. A state-of-the-art mini bottling plant has been established at MAHE which has the latest filtration and bottling technology.

