



# WATER WISE

Water and wastewater management are important aspects of hospitality that are part of their ecological strategy

BY BINDU GOPAL RAO

➡ Sewage treatment plant at Sheraton Hyderabad

**H**otels use a copious amount of water, and this is an area where any changes can mean significant cost savings. This is also an area where guests can do their bit by being conscientious.

## WATER MANAGEMENT

Water is used in guest room shower fixtures, tap flow aerators, double-tank flush and faucets, water regulating valves, staff areas, and the kitchen. Managing water includes getting the proper quality of water for the desired purpose, finding ways to minimise its use, and recycling wastewater back for further use. The water and wastewater treatment systems (WTP's) are very important in

the hotel industry for cooking, cooling tower, boiler, and swimming pool operations. Mangesh Surve, Founder & Director, Envicare Technologies, says, "Approximately 60% of fresh-water need can be taken care of by wastewater recycling. Laundry wastewater has a higher pH and contains soaps and detergents; this can be well treated in ETP (Effluent Treatment Plant) followed by UF (Ultra Filtration). The kitchen wastewa-

ter has the presence of floating oil and grease that needs to be removed and can be further treated in a biological reactor with sewage."

## THE RIGHT STEPS

Rajesh Radhakrishnan, General Manager, The Park Chennai, states, "The Park Hotels has been 'Sustainable by Design' since the early 2000s. Our bathrooms are designed to conserve water usage. Showerheads are optimally sized to minimise water usage. The flush systems in most units are discharged based on user requirements and not the standard 3-6 litres of water discharge by default. Some of the units also have a water-saving dual flush cistern.



➡ Kazi Jamiroddin, Director of Engineering, Sheraton Hyderabad Hotel.



➡ Dr. Rachna Dave, CEO and Founder, MicroGO

We have installed water-saving aerators in all taps, which save up to 55-60% of water. We introduced a rice steamer in staff kitchens that saves water involved in the process. Optimisation of laundry operations and training the laundry team on optimal washing loads have also saved us. Reducing filtration wastage in water treatment plants is another area we focused on. We also started placing glass water bottles on restaurant tables, ensuring that guests help themselves with as much water as they need instead of the earlier process of pouring water by default for all diners. The treated water from Sewage treatment plants is used for cooling tower usage and gardening purposes. Providing informative 'green communication' in the room, urging guests to turn off taps and showers while not in use, opting for changing bed and bath linen only based on requirement which is another practice for long."



**A variety of new wastewater treatment technologies are now available — such as Thermal Hydrolysis and Microbial Fuel Cells. As waste management begins at collection, the most challenging stages are the separation and processing steps. Thermal Hydrolysis is a technology that simplifies the latter two. It serves three purposes, wastewater treatment, the reduction of waste by-products, and the production of biogas.**

## SYSTEMS AND TOOLS

On average, a hotel's total water usage per person is 400-450 litres per day. This usage is measured by a smart water flow meter, which gives the per-day consumption rate. This study helps hotels track water usage according to occupancy- during peak seasons, there is a hike in consumption. This also helps track leakages, which then conserves water. The Total Dissolved Solids (TDS) for public area usage and drinking water are measured on a routine basis. Mansur Mehta, Managing Director, Suba Group of Hotels, reveals that, "For areas open to the public, we have a water softener plant, and for drinking water purposes, we have RO filter treatment in all our hotels. We use the Sewage Treatment Plant (STP) in our properties for wastewater management. This is a natural approach to domestic wastewater treatment, highly effective, simple to operate, and environment friendly. This water is then used for other purposes like cleaning, gardening, and other sundry uses. Since we have hotels in different locations, we can draw water from a bore well or from a municipal supply."



JW Marriott Mumbai Sahar uses an array of different kinds of wastewater management systems, ranging from Reverse Osmosis to having an additional water treatment plant consisting of a multi-media filter, an activated carbon filter and a softener with ultraviolet filtration. Establishing a water waste management plan and having a water usage audit has helped them in attaining a clear understanding of the hotel's cost and saving opportunities.

#### USABILITY MATTERS

Mercure Hyderabad KCP has a segregated alkaline water plant system for the in-house guest, which produces 1000 bottles per day. "We use Reverse Osmosis (RO) to purify and use water for our guests and staff. We have different plants to manage useable and wastewater. The system for this is called RO, STP and WTP. There are systems like Pressure Sand Filter, Activated Carbon Filter, which are attached with filter-measurable machine to measure the pressure and maintain stability, as our entire system is operated automatically," says Parag Shah, General Manager, Mercure Hyderabad KCP.

Girish Gaikwad, Director of Engineering, JW Marriott Mumbai Juhu, adds, "We take pride in saving approximately 50% of water, and this is because most of the water that is consumed daily is recycled water. 100% of the wastewater from the Sewage Treatment Plant is used as flush water in restrooms, leading to 30 kL savings per day and 900 kL savings per month. A swimming pool suction sweeping machine with an in-built filtration system has been installed to reuse the swimming pool water, which was previously drained, resulting in 20% savings per day."

#### PLAN IT OUT

It is extremely important for any hotel first to have a clear understanding of the current water consumption patterns and then accordingly set goals and a clear plan of action. Uravu Labs, a deep-tech start-up on creating sustainable water out of air, focuses on eliminating the root cause of the problem instead of trying to find temporary solutions. When everyone in the world is trying to come up with water management methods to manage the water obtained from rivers, lakes, groundwater, and other water bodies, Uravu has managed to change the source from which the water is generated. The start-up has introduced an innovative and 100% renewable technology to generate water from the air. "This technology uses inexhaustible atmospheric moisture and only renewable energy to produce the highest quality water. It is a desiccant-based technology; the system is industrial-scale and can utilise various energy sources like solar heat, biomass, waste heat, and even renewable electricity, thereby being truly energy-agnostic and flexible to various applications and sites. Customers can become truly net-zero when it comes to water usage," says Pardeep Garg, Co-founder, Uravu Labs.

Uravu's technology does not use groundwater or non-renewable sources of energy to function; its technology also reduces the carbon footprint, making it the most viable solution out there for potable water needs.

#### MEASURE & USE

Precise measuring instruments like flowmeters can easily give you the amount of water the industry has used and wasted. This will help to monitor and control the water resources very well. The



➔ Rajesh Radhakrishnan, GM, The Park Chennai.



➔ Girish Gaikwad, Director of Engineering, JW Marriott Mumbai Juhu.



➔ Mangesh Surve, Founder & Director, Envicare Technologies.

data from the flowmeters can be taken automatically on the server to monitor and take the right step for treatment.

Magnetic flow meters in the market give a more accurate reading of water consumption, although they are mostly used in wastewater treatment plants.

"We have water flow meters installed to measure water usage around the hotel, area-wise. This helps us develop strategies to manage the usage, control the flow and conserve water wherever possible. We also analyse consumption occupancy-wise," says Kazi Jamiroddin, Director of Engineering, Sheraton Hyderabad Hotel. Flow restrictors are usually installed by hotels in every guest room's plumbing fixtures. With the help of these flow restrictors, they can have excellent water quality as well as energy savings while keeping the pressure constant. Flow restrictors reduce water flow while maintaining the same pressure in water for plumbing fixtures. This has resulted in a total water saving of 8615 KL per Year at JW Marriott Mumbai Sahar and reduced the frequent starting and stopping of pumps which has decreased the energy consumption and helped achieve their energy and sustainability goals.

#### TECHNOLOGY TRENDS

Membrane Bio Reactor Plant that uses biological wastewater ultra-filtration treatment system to use recycled water for flush system is a new trend. Digital Water Management, which uses AI and IoT sensors to monitor quality and usage quantity remotely, is another technology that hoteliers are testing.

"Atmospheric water generators have been gaining quite a lot of traction recently, but most of these solutions are still dependent on energy-intensive methods like air conditioning-based processes. Uravu is bringing the next generation desiccant-based technology, which is much more energy efficient and works across a wide range of Relative Humidity (RH) conditions," avers



➔ Water filtration system at Sheraton Hyderabad.

Garg. The main issue in the hospitality industry revolves around Legionella, an opportunistic pathogen responsible for causing legionellosis (lung infection). The most striking feature of this organism is its chlorine (widely used water disinfectant) resistance.

"GOpure™ is programmed to trigger the dosing pumps to initiate correctional dosage when Total Residual Oxidant (TRO) levels are not met. If the incoming water has the prerequisite TRO, then the system logs the data and does not perform additional disinfection, ensuring that operational sustainability is maintained. Additionally, the temperature is also measured, and an alarm is triggered if the conditions are outside the ideal range for Legionella growth. The water hygiene systems are very much part of the KRA of the hygiene manager at the hotel. With the IoT enabled feature, we have created an ecosystem that integrates water hygiene as part of our all-in-one hygiene monitoring portal GOsmart™, which also monitors hand, surface, and other hygiene SOPs," says Dr. Rachna Dave, CEO and Founder of MicroGO.

#### DO THE NEW

The latest trending system which is used in wastewater management is Thermal Hydrolysis Technology which serves three purposes, wastewater treatment, the reduction of waste by-products, and the production of biogas. "Once wastewater is treated, and the sludge is collected, then the production of biogas starts. As mentioned earlier, we also use sewage treatment plant, which is



➔ Rahul Save, Director of Engineering, JW Marriott Mumbai, Sahar.

a traditional approach to wastewater management," adds Mehta.

Wastewater management, also known as the collection, treatment and recycling of wastewater, is a vast and crucial subject. At present, a variety of new wastewater treatment technologies are available such as Thermal Hydrolysis and Microbial Fuel Cells. As waste management begins at collection, the most challenging stages are the separation and processing steps.

"Thermal Hydrolysis is a technology that simplifies the latter two. New technologies in water management systems also include reverse osmosis, digital water management, ultra/advanced water filtration with water saving fixtures and pressure sensor-based hydro-pneumatic system," says Rahul Save, Director of Engineering, JW Marriott Mumbai, Sahar. Saving water is key to the success of any enterprise, especially hospitality. And the time to act is now. 📌