Manipal University Jaipur Measures Water Reuse Across Campus

Manipal University Jaipur is actively adopting water reuse practices to enhance sustainability and foster a more water-conscious future. Water reuse, often referred to as water recycling or reclaimed water, entails the treatment and repurposing of wastewater for non-potable applications, including irrigation, cooling, and toilet flushing. The implementation of water reuse strategies on campus offers numerous benefits. It diminishes the reliance on potable water, thereby alleviating pressure on local water resources. Furthermore, water reuse is in alignment with sustainability objectives and aids in mitigating water-related environmental impacts. These initiatives also create educational opportunities for students, nurturing a culture of environmental stewardship.

Evaluating Water Reuse Across Campus

Analyzing Current Consumption: Manipal University Jaipur initiated its efforts by evaluating existing water consumption patterns to pinpoint areas where water reuse could be effectively integrated. This process includes identifying sources of wastewater, such as greywater from sinks and showers, as well as rainwater runoff from building rooftops. The establishment of water reuse systems necessitates the development of suitable infrastructure and technologies. Manipal University Jaipur has made investments in treatment facilities, distribution networks, and storage solutions to ensure that the treated water is safe and appropriate for non-potable uses. Monitoring plays a vital role in assessing water reuse. The university employs sensors, meters, and data analytics to monitor water consumption and the efficacy of its reuse systems. This information aids in recognizing trends, optimizing operations, and ensuring adherence to water quality regulations. Manipal University Jaipur emphasizes transparency by sharing water reuse data with the campus community and relevant stakeholders. Regular updates on water conservation, system performance, and maintenance efforts enhance awareness and accountability. The university utilizes advanced monitoring technologies to evaluate the effectiveness of its water reuse systems, ensuring compliance with water quality standards and optimal performance.

Water Conservation Facilities at the Institution

At Manipal University Jaipur, integrated water management strategies are developed and implemented with a strong emphasis on achieving social, economic, and environmental benefits. This approach has enabled MUJ to progress towards water neutrality by establishing a resilient and adaptable water infrastructure. The campus, designed to accommodate 1,150 individuals, requires a groundwater supply of 220 KLD. The total water demand is categorized into three main areas: residential use, toilet flushing, and irrigation

for landscaping. The groundwater supply sufficiently fulfils the university's requirements. The implementation of water meters allows for precise measurement of water consumption, ensuring that billing is based on actual usage. This sub-metering system provides economic, engineering, and management advantages, all of which contribute to the promotion of sustainability at MUJ.

The university blocks at MUJ consume a specific volume of water annually, while the sewage treatment plants (STP) provide processed water for flushing and gardening purposes. Additionally, rainwater harvested in the Rainwater Harvesting (RWH) tanks is utilized for landscaping. The dry sludge from the STP is further converted into manure for on-site landscaping applications. Approximately 80 percent of residential and flushing wastewater is processed, and this recycled water is employed for landscape irrigation. The hostel blocks have their own annual water consumption figures, contributing to the overall campus usage.

Wastewater is treated to enhance the natural purification process, thereby supporting the environment. Manipal University Jaipur (MUJ) is committed to treating wastewater not only for the benefit of its students, faculty, and staff but also for the surrounding flora and fauna, utilizing a sewage treatment plant with a capacity of 1,850 KLD. Wastewater from campus buildings is collected through underground drainage systems and treated in the STP to meet the required standards.

Water Treatment Plant and Sewerage Treatment Plant

MANIPAL UNIVERSITY
JAIPUR
(University under Section 2(f) of the UGC Act)

SALIENT FEATURES OF CLEAN AND SMART CAMPUS

- Solar Power Plant of 2.3 MWp is installed on roof-top of the buildings, Ground Mounted and parking shed in the Campus – one of the largest roof-top Solar Power Plant in India for any Private University.
- The University is a **'Zero Discharge Campus'**, with Rain Water Harvesting, Waste water recycling and reuse and Ground Water recharging in place. Water conservation through campus wide drains and ponds for water collection.
- Sewage treatment plants on both sides of the campus.
- Campus greening through extensive tree plantation.
- The University has a Bio-Gas generation system using Kitchen waste, producing 30kg of Gas per day with 500 kg of Kitchen waste.
- All buildings are optimally designed to maximize daylight and minimize heat gains.
- Digital Campus

LIQUID WASTE MANAGEMENT-INHOUSE-SEWAGE TREATMENT PLANT

- MUJ is equipped with **4 STP** Plants with different capacity
- 1000 KLD, 350 KLD(two) and 150 KLD **IN TOTAL 1850 KLD**.
- Sewage treatment removes contaminants from wastewater, which includes physical, chemical, and biological processes to remove these contaminants and produce environmentally safer treated water (it has been used for flushing and gardening). In normalcy are producing 1850KL treated water per day.

MANIPAL UNIVERSITY
JAIPUR
(University under Section 2(f) of the UGC Act)

6 CLEAN WATER AND SANITATION

LIQUID WASTE MANAGEMENT-INHOUSE-SEWAGE TREATMENT PLANT

MANIPAL UNIVERSITY
JAIPUR
(University under Section 2(f) of the UGC Act)

WASTE USAGE /COMPOSE PIT AT MUJ

1. Waste is collected from different corners of campus
2. After segregation, waste is put into compose pit
3. After a few weeks, earthworms and microorganisms in the soil convert the organic matter into useable compost.

Water Recycling

Manipal university has an Integrated Water management strategies that are designed & implemented for the campus mainly focusing on triple bottomlinebenefits i.e., social, economic and environmental benefits. This created aflexible, resilient water infrastructure which helped MUJ progress towards water neutrality.

MANIPAL UNIVERSITY
JAIPUR
(University under Section 2(f) of the UGC Act)

USAGE OF RECYCLE WATER

Year 2022-23			
WTP		STP	
Domestic water in KL		Flush water in KL	
200 KLD (MUJ)	80 KLD (Housing)	150KLD	350KLD
6015	1505	194	3706
4750	1360	480	4197
4715	1310	260	4406
3665	1225	164	5068
2460	1070	2	4816
2965	1300	177	5027
2985	1345	147	4323
2835	1300	55	4492
3210	1295	48	4217
4130	1210	16	4066
3530	1195	0	3954
3320	1270	0	4058
44580	15385	1543	52330