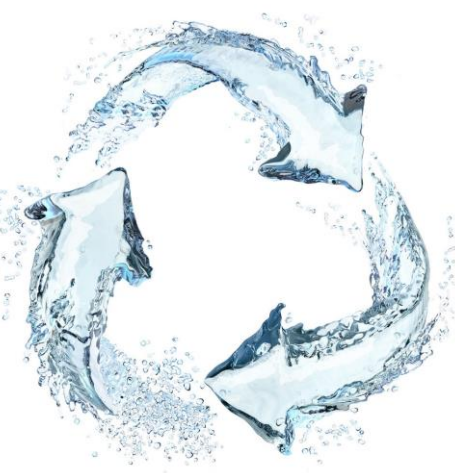


Reuse of Water in the Circular Economy



Aqua-Q collaborative work in Pavitra Ganga

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COMPANY

Aqua-Q is an independent Swedish applied research Clean-tech SME, the company is a co-operation partner in the project and wants to display its innovations.

1. Real time online optical monitoring and sampling system AQUATRACK® to monitor the MBR, MBBR, STP effluent efficiency.
2. On-line novel ozone polishing system to eliminate pharmaceutical residues, pathogens and residual organics in treated wastewater.

Combining 1+2 the system becomes AQUA-RENOVATE™. Both of the technologies are patented.

INTRODUCTION

The main source of contamination comes from untreated or insufficient purified wastewater, both industrial and small scale private sewage discharge. It pollutes rivers, lakes, water bodies and coastal waters and creates potential risks for microbiological contamination in drinking water, public health and ground water etc. The emerging environmental problems are the pharmaceutical residues in purified or insufficient purified wastewater both from municipalities and pharma industries.

Different pharmaceutical residues like anti-depressive, neuroleptics, sedatives, heart medicines, and cytostatic etc that we humans consume, the residues go out as urine & faeces. Pathogens like bacteria, parasites and viruses comes from human faeces. Different heavy metals, microplastics, pesticides and many other organic & inorganic chemical compounds comes from industry and household which are difficult to disintegrate and not easy to treat due to its complexity and many more. These pollutants are tiny, not visible to human naked eye and need tiny host micro particles to stick to, to move forward in water. These are commonly called as micropollutants.

Today's advanced wastewater treatment technologies like MBR, MBBR, STP effluents are not optimised to treat and remove micropollutants and have significant limitations in treatment of pharmaceutical residues, only about 50-60% of the pharmaceutical residues are removed. Remaining residual compounds in the effluent are pathogens that are harmful to human's aquatic life and waterbodies and cause environmental pollution, disease spreading and infection in the society.

AQUA-Q'S COLLABORATIVE WORK IN PAVITRA GANGA

To address and solve the above mentioned problems of contaminations Aqua-Q has developed, verified and demonstrated its innovations 1. and 2. above. The setup and the results are shown below.

Automatic real-time quick surveillance system which monitors water quality day & night and provides the deployer information of anomaly, technical breakdown in process, infiltration of surface water, sudden increase of micro-pollutants/contaminants in water that may present a high risk for biological growth & chemical pollution. The purpose is to enable the deployer of the early warning to prepare for the danger so that they can act pro-actively to mitigate it. Recognising micro-pollution in an early stage can save lives and increase the possibilities of finding solutions quickly. This development is to achieve the 2030 UN goals for safe and clean water and hygiene.



CONCLUSIONS

- 1) Combination of on-line optical real-time monitoring, sampling and removal by Aqua-Qs cost effective modular ozone polishing technology is a powerful tool to remove micro-contaminants, emerging EC's, pathogens in treated wastewater to meet the growing need for water shortage. Safe reuse of water is essential and this source cannot be denied.
- 2) Contaminated discharge to nature must be regulated by the govt.
- 3) Human health/life and environment must be protected, early detection of contamination in water saves money.