

NEW TECHNOLOGIES FOR CLEAN AND RECYCLE RESIDUAL EFFLUENT WATER

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New technologies to recycle water from municipal waste water treatment plants and contribute for the environmental sustainability of towns and regions is of utmost urgency. This study is taking place on the Mondego River, lower basin and estuary, from Coimbra to Figueira da Foz.

In this work we developed a new treatment system using submerged membrane bioreactors for improved treatment and removal of pollution eliminating particles, bacterial and virus from the treated effluents.

Use of micro algae photo reactors as an alternative tertiary treatment of urban wastewaters was also evaluated.

Monitoring and long distance supervision are also possible with this system. The bio treatment process was monitored with an online sensor based on ultra violet spectra technology for continuous analysis of COD, NO₃ and TSS. This system eliminates the constant need for samples recollection to further analysis.

Supervision is ensured by last generation SCADA software (MOVICON), analysing in real time all the occurrences and registering all the values in a data base. A new system of at distance supervision and control for urban wastewater treatment plants (WWTP's) was also tested and could allow for better technical performance and economy.

Physico-chemical characterization of local WWTP's and Mondego River were performed, in order to test a kinetic model representative of the impact of WWTP's in the environment.

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