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*A Comparative Life Cycle Assessment of a wastewater treatment technology considering two inflow scales
LCM. Towards Life Cycle Sustainability Management*

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Abstract

A Life Cycle Assessment (LCA) is carried out for two wastewater treatment plants (WWTP) of activated sludge technology with different scales of inflow: 12 l/s and 1437 l/s (small and big WWTP, respectively), in order to determine if several small WWTP are environmentally preferably to one big WWTP to treat an equivalent inflow. The functional unit is the quantity of inflow treated by the big WWTP during 20 years. For both systems the energy consumption, raw material, emissions to air, solid wastes and water discharges were quantified for each one of the life cycle stages: equipment fabrication and transport, construction and operation of the plants. The results suggest that the installation of one big WWTP is better in environmental terms that several small WWTP for all the impact categories analyzed. The operation presents the highest impact due, principally, to the use of electricity by the aeration system.