

Characteristics of Domestic Sewage in Small Urban Communities

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Abstract : An evaluation of the characteristics of wastewater generated from small communities was carried out in relation to decentralized approach for domestic sewage treatment plant and design of biological nutrient removal system. The study included the survey of the waste from various individual communities such as a hotel, a residential complex, an office premise, and an educational institute. The results indicate that the concentration of organic pollutant in wastewater from the residential complex is higher than the waste from all the other communities with COD 664 mg/l, BOD 370.2 mg/l and TSS 248.8 mg/l. And the waste water from office premise indicates low organic load with COD 428 mg/l, BOD 232 mg/l and TSS 157 mg/l. The wastewater from residential complex was studied under activated sludge process to evaluate this technology for decentralized wastewater treatment. The Activated sludge process was operated at different 12 to 4 hrs hydraulic retention times and the optimum 6 hrs HRT was selected, therefore the average reduction of COD (85.92%) and BOD (91.28 %) was achieved. The issue of sludge recycling, maintenance of biomass concentration and high HRT reactor (10 L) volume are making the system non-practical for smaller communities.

Keywords : wastewater, small communities, activated sludge process, decentralized system

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