

Natural treatment systems as an alternative treatment system for domestic waste water treatment in rural sections of Turkey

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Abstract

Natural treatment systems are used as an alternative to conventional treatment systems. They are commonly used for the treatment and management of municipal and industrial wastewaters and these processes use minimal energy, labor and minimal or no chemicals. In most cases, this approach results in a system that costs less to build and operate and requires less energy than mechanical treatment alternatives. Among those natural treatment systems, the constructed wetlands are the systems emulating the natural wetland systems. They are commonly used for treatment of domestic and industrial wastewater in specially designed basins with aquatic plants and easily be used for small-to-medium sized communities. Serious interest in natural methods for waste treatments has reemerged throughout the world. Constructed wetlands with their cheaper and easy construction, low energy and labor costs, easy operation, maintenance and monitoring were specified as the primary issue in rural development strategy document of State Planning Organization of Turkey. Almost all the systems in Turkey are designed as sub-surface horizontal flow type constructed wetlands and most of them are not able to perform as expected because of errors and mistakes made during the design, construction, operation and maintenance of these systems. In this study, general issues to be considered in design, construction, operation and maintenance of sub-surface horizontal flow constructed wetlands commonly used in rural parts of Turkey for domestic wastewater treatment purposes were assessed and current implementations in Kayseri Province were investigated. Potential mistakes made in their design, construction, operation and maintenance of them were pointed out and possible solutions were proposed

Key words: natural treatment, constructed wetlands, waste water, rural sections, Turkey

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