GROUNDWATER POLLUTION STUDY AT PADUKUHAN SETURAN, CATURTUNGGAL VILLAGE, DEPOK SUB-DISTRICT, SLEMAN DISTRICT, SPECIAL REGION OF YOGYAKARTA

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ABSTRACT

Water is an important element in life. Almost all life in this world is inseparable from the presence of the element of water. The quality of groundwater that exists in nature varies according to time and space mainly due to the influence of human activities, rock types, aquifer characteristics, topography, and also land use. Development for residential needs, offices, businesses, boarding houses and apartments have impact on groundwater quality. These activities will cause waste which will be a problem for groundwater quality. Activities from the domestic sector as well as business activities often lead to waste that is not managed and will be able to cause potential groundwater pollution that is commonly used by surrounding communities. Therefore, the purpose of this study is to determine the condition of groundwater quality, as well as the direction of groundwater treatment techniques at the study site. The research location is located in Padukuhan Seturan, Caturtunggal Village, Depok District, Sleman Regency, Special Region of Yogyakarta.

The method used is a survey and field mapping, the method used for sampling is the purposive sampling method, the pollution index method is used to find groundwater quality status values that refer to the Decree of the Minister of Environment No. 115 of 2003, the descriptive evaluation method is used to evaluate all results measured research. Domestic wastewater management is needed to maintain groundwater quality by designing a Communal WWTP with an Aerob-Anaerobic Biofilter system.

Based on the determination of groundwater quality status using the Pollution Index method, the condition of the physical quality of the residents' well water is classified as clear with the status of the water quality not being polluted so that it is still fit for physical use. The planning of the pipeline network to the Communal WWTP will be made from higher topography to lower topography (from west to east). This is because the distribution system in the pipeline will use gravity as a channel for domestic liquid waste without using the aid of pumps to the Communal WWTP. Groundwater quality management recommendations are the need for further research for groundwater chemical and biological parameters, detailed technical design (detailed engineering design) for Communal WWTP with the Aerob-Anaerobic WWTP Biofilter system.

Keywords: Groundwater Quality, Water Physical Parameters, Communal Wastewater Treatment Plant (WWTP).