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EVALUATION OF THE IMPACT OF PUMPED GROUNDWATER ON THE ENVIRONMENT AND THE SOCIO ECONOMIC BENEFITS THEREOF

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Abstract-With South Africa being one of the most water-scarce countries in the world, the limited water resources available must be well preserved and consciously utilized. Thepurpose of the research was to quantify the daily amount of groundwater pumpedout of the University's basement area, determining the impact that it has when discharged into the surrounding environment as well as the socio-economic benefits it holds for the community and theUniversity. By analyzing data recorded from installed meters, it was determined that there was an average of 192.89m^3 of groundwater extracted daily from March 2016 to February 2019. It was established that a total of 55.8% of this water was not utilised by the University and was discharged into the municipal stormwater system which was essentially wasted. Further investigations found that the installed meters did not account for all of the water flowing out of the basement area into the stormwater drain and that the amounts are greater than anticipated.The groundwater's point of discharge from the basement area was identified and it was discovered that due to the long term discharge of water at this point, a crack has formed in the pavement adjacent to the road surface. Remedial action is required in this area to prevent further deterioration of the road surface which may become a safety hazard for motorists. It was also determined that this groundwater possesses the potential to save the University expenditure on municipal water expenses and these savings can be utilised to improve the conditions on campus for the students. This groundwater also holds vast amounts of socio-economic potential to improve the lives of many poor individuals in the surrounding community.

***Keywords*:** Pumped groundwater, Socio-Economic benefits, Environmental impact, Stormwater system.