ASSESSMENT OF THE PERFORMANCE OF THE MAASAI MARA UNIVERSITY WASTE WATER TREATMENT PONDS

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ABSTRACT

Ponds have been used universally for sewage treatment for a long period of time as a biological means of water treatment. It is a relatively cheap and affordable way of treating wastewater. Studies have been done to assess the quality of water recycled from the treatment. The quality should permit the reuse of the water either for domestic and industrial use. Changes have been made since the introduction of the treatment ponds to reaffirm its advantages as to the use of chemical in the sewage treatment that goes with the environmental friendliness of the system. This has led to the interest in assessment of the quality of water with respect to bacteria counts. Maasai Mara University has a population of approximately 5000 which mostly consists of the students. This high population in the university compared to the waste water generated can lead to water borne diseases and contamination of the water sources including unhygienic conditions in the surrounding residential areas. Aerated lagoons have been used for centuries as a biological means of waste water treatment. It is a relatively cheap and affordable way of treating waste water. The proposed project will find out the efficiency of the lagoons in Maasai Mara University for waste water treatment. The project seeked to resolve the water crisis in Maasai Mara University and broaden ways in which the university would be able to reuse or recycle its waste water and ensure continuous flow of clean water and reduce the costs of waste water treatment in effluent treatment plants (ETPs) from an economic perspective. The study employed field investigation research design, photography, and sampling. Primary sources of Raw data on waste generated in the university from experiments and research while secondary from books, journals, newspapers and articles from the internet on waste water and sewage treatment. Data analysis and interpretation was carried out in line with the objectives forming chapters in the final analysis. The findings can also be used by affected stakeholders to come up with remedies of water pollution. From the experiments on physic-chemical properties of the treated water in the lagoons, they show that the lagoons are not completely efficient in removing all the pathogens .According to the NEMA standard the pH of the effluent should be in range of 6.5-8.5 at discharge point but the pH range of the lagoons is between 7.0-7.74 which is at the allowable limits. According to NEMA standard the EC of the effluent should be 1200 µs/cm. All of the values are less than the standard value. Dissolved oxygen (DO) in water body is very good indicator of water quality. According to the water quality standards the Dissolved Oxygen of the effluent should be within the range of 4.5 to 8mg/l. DO for the lagoons ranges from 1.23-3.78mg/l which is not within the required standards of NEMA. The effluent doesn't meet the standards of NEMA.