Clay Bricks: An Ultimate Solution to Zimbabwe's Clean Water Crisis

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In Zimbabwe, access to clean water is one of the greatest challenges that has resulted in about 100 000 people getting infected and about 4000 people dying annually to waterborne diseases because of the poorly treated water that is supplied to households. The current conventional water purification methods used in Zimbabwe are expensive and also add water contaminants due to chemical additives and an outdated wastewater treatment process. Furthermore, over 3.4million people in the world suffer from waterborne diseases as a result of drinking unsafe dirty water and 829 000 people die annually. This research aimed to eradicate the clean water crisis in Zimbabwe by developing a novel, efficient and environmentally friendly water purifying device that degrades biological contaminants in water using readily available materials from the environment. The researcher tested the hypothesis that combined metal oxides from clay bricks are an ideal photocatalyst and, when irradiated by Ultra Violet light, biological contaminants in water can be degraded. The hypothesis was tested by suspending the photocatalyst in the water to be purified in dark conditions until absorption equilibrium was reached and the suspension water irradiated with UV light from LED lights at wavelength of 450m. The results indicated that the targeted biological contaminants were degraded and also the pH of the purified was closer to neutral and clearer than before. Therefore, it can be concluded that the novel device effectively facilitates the degradation of biological contaminants in water, making this device prove to be the ultimate solution to Zimbabwe’s clean water crisis as it is a cheaper and effective way of purifying water, unlike the current conventional purifying methods used in Zimbabwe.

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