TITLE OF ARTICLES: Using water hyacinth (Eichhornia crassipes) to treat wastewater of a residential institution

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ABSTRACT: The efficiency of a reed bed system in the treatment of wastewaters from the premises in a new Residential University Community was studied. The raw influent and treated effluent samples of six concrete tanks in series, each with four cells containing water hyacinth weeds, Eichhornia crassipes, were characterized using standard methods to determine their bacteriological quality, BOD5, COD, total solids and volatile organic solids concentrations. Dissolved ferric ions and ions of selected heavy metals in the samples were also determined. The impact of the effluent on the receiving stream water sample taken about 200m before the Treatment unit was monitored. The final treated effluent was discharged down the face of a cliff into a receiving stream more than 20m below. There was marginal improvement on the quality of treated effluent with 62% reduction of BOD5 from 275 to 105mg L_1, 62% of COD from 452 to 172mg L_1 and 14% of total solids from 428 to 368 mg L_1. The fecal coliform count of the effluent is also in excess of recommended maximum contaminant level. The high concentration of lead, iron and phosphate in all the samples, especially the treated effluent points to the need for further treatment of the effluent to meet regulatory standards. The need for improved treatment and routine monitoring of the water quality in the reedbeds and the receiving stream was established.