

Physicochemical analysis of water and sediments of Usuma Dam, Abuja, Nigeria

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Abstract. Usuma Dam is the major source of potable water in the Federal Capital Territory, Abuja, Nigeria. The physicochemical properties of water and sediment of the dam was assessed in this study to determine its quality. Electrical conductivity, pH, nitrate, phosphate, total dissolved solids, total suspended solids, turbidity, dissolved oxygen, biochemical oxygen demand, chemical oxygen demand, chloride, total hardness, phosphate, nitrate and sulfate were determined in the water samples. Total organic matter, total organic carbon and particle size were among the parameters analyzed in sediments. The parameters were within recommended limits except for biochemical oxygen demand and chemical oxygen demand which were more than the recommended limit of 10 mg/L and 30 mg/L respectively. The total organic matter and the total organic carbon in the sediment samples were between $1.56 \pm 0.27 - 2.85 \pm 0.20$ % and $0.13 \pm 0.03 - 0.96 \pm 0.03$ % respectively. The particle size was in the following order: sand > silt > clay. The results of this study confirmed the presence of high organic and inorganic matter in the dam from non-point pollution sources occasioned by storm water from poorly planned settlements around the dam and runoffs from agricultural practices.

Keywords: physicochemical parameter; pollution; Usuma Dam; sediment; water quality.

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