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**COMPLIANCE TO RIVERBANK REGULATION GUIDELINES AND ITS IMPACT ON THE QUALITY OF RIVER ENYAU IN ARUA MUNICIPALITY, UGANDA**

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**ABSTRACT**

This study documented the human activities carried out in the protected zones of river Enyau (within 30 m of river's bank) and their influence on the quality of the river. Human activities in the protected bank of river Enyau and the quality of the river were ascertained during a field survey in March-May, 2019. The diversity of macrozoobenthic invertebrates per site and water pollution levels were determined using Shannon-Weiner ( $H'$ ) and Biological Monitoring Working Party (BMWP) indices respectively. Fourteen different human activities dominated by housing units (27%) were observed in river Enyau protected zones under study in Arua Municipality. Ozu-Ediofe zone corresponding directly to Arua urban center recorded the highest occurrence of the human activities (65.3%) which greatly reduced the macrozoobenthic invertebrate diversity ( $H'=1.2$ ) and caused pollution of river Enyau (BMWP=26.0) along that zone. The downstream zones, Onduparaka ( $H' =2.24$ , BMWP=68.6) and Onduparaka-Ozu ( $H'=1.57$ , BMWP=46.9) sites were both moderately polluted. On the other hand, the upstream zones i.e. Ediofe-Pajulu Bridge ( $H'=2.52$ , BMWP=132.9) and Ragem Technical Institute ( $H'=2.48$ , BMWP=96.2) were unpolluted and slightly polluted respectively. Hence, the implementation of the existing river bank management guidelines should be strengthened in Arua Municipality to ensure good quality of river Enyau and its sustainability.

**Keywords:** Arua Municipality, Compliance, Regulation guidelines, River banks, River Enyau.

**1. INTRODUCTION**

Freshwater sources such as rivers, streams, wells, springs, wetlands and lakes are the most available forms for human consumption and use yet they are also the most prone to pollution (DuPlessis, 2017). Most studies have shown that freshwater pollution emanates from unregulated human exploitation of the water resources for livelihood resulting from population and economic growth (Makoba, Shivoga, Muchiri, & Miller, 2008; Rizkiyanti, Maizar, & Hertika, 2013; Odonkor & Addo, 2013; United Nations, 2015).

Uganda has been one of the fastest growing population in Africa (Lopes, 2016) and Arua Municipality in Uganda is a fast urbanizing town which has recently experienced a rapid population growth resulting into emergence of many economic activities (Abudu, Azo, & Andogah, 2018). Reports show increasing trends of settlement and encroachment in the protected