# IMPACT OF AGRICULTURAL ACTIVITIES ON WATER QUALITY OF SERIN RIVER

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**Abstract**

In Sarawak, animal farming is an important industry. The growth of this industry poses a concern due to river water quality deterioration. Water quality of the Serin River was reported to show sign of degradation as a result of effluents discharged from animal farm. However, there was still deficiency in the water quality data as only four stations were studied and the status of heavy metals was unknown. Hence, the objective of this study was to determine heavy metals concentrations and nutrients of the Serin River in order to assess the impact of different activities on the water quality. Sampling collection was carried out from January to March at seven stations. Results of analysis indicated that the tributary that received animal farm effluent has significantly higher mean concentrations of $NH_3$-N (2.61 mg/L), Org-N (0.96 mg/L) and TKN (3.56 mg/L). This tributary also has the highest average value of Cu (0.096 mg/L) and lowest DO concentrations (2.24 mg/L). Among the remaining stations, SB has significantly higher mean $NO_3^-$-N concentrations (0.09 mg/L) attributed to the small scale crops in the watershed. For heavy metals analysis, the mean concentrations trend are arranged in decreasing order of Cu > Cr > Cd with concentrations ranging from 0.002 mg/L to 0.096 mg/L. Stations S1 and ST have the highest Cr (0.024 mg/L) and Cd (0.013 mg/L) concentrations respectively. These are most likely caused by the wastes generated from school and residential area at ST as well as accumulation of fish feed and manures at ST. Nonetheless, all of the water quality parameters including heavy metals of sampling stations studied fell into Class II in accordance with INWQS with the exception of DO concentration of SP which was categorized under Class III.

Keywords: Water quality, animal farming, agricultural activities, heavy metals, Serin River.