

**CLIMATE CHANGE AND THE FUTURE OF RIVER
WATER QUALITY IN INANAM LIKAS RIVER BASIN,
KOTA KINABALU, SABAH**

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ABSTRACT

CLIMATE CHANGE AND THE FUTURE OF RIVER WATER QUALITY IN INANAM LIKAS RIVER BASIN, KOTA KINABALU, SABAH

Climate change may impact river water quality by affects the amount of precipitation and fluctuating water temperatures of rivers. The aims of this study is to determine the river water quality in Inanam Likas River Basin (ILRB) which can be correlated to analyze the effects of climate change and the future of river water quality. This study focuses on the analyses of river water quality by determining the Water Quality Index Sub-Indices (WQI_{sub}) on the basis of the physico-chemical parameters. Sampling was carried out three times which involving 12 sampling stations along the ILRB. The 12 sampling stations were labelled as S1, S2, S3, S4, S5, S6, S7, S8, S9, S10, S11 and S12. The parameters water temperature (WTemp), pH, conductivity (EC), dissolved oxygen (DO) and total dissolved solids (TDS) were measured *in-situ* using a multiparameter YSI 556 Model MPS while determination of the concentration levels of total phosphorus (TP) and nitrate nitrogen (NO_3N) were measured *ex-situ* in laboratory using DR 2800 Spectrophotometer and UV-Vis Spectrophotometer. Overall, river water quality of ILRB was in Class III, which has the value of WQI_{sub} 60.79 and corresponded to classification of slightly polluted and average water quality. The value of air temperature and precipitation showed a change in the period of 2006 to 2016. This shows that there is correlation between WQI_{sub} and climate variables, which air temperature ($r=0.69$) and precipitation ($r=0.34$). Therefore, the fluctuation of climate variables which air temperature and precipitation will affect WQI_{sub} .