

## **Analyses Water Bodies Effect in Mitigation of Urban Heat Effect Case Study Small Size Cities Kuching, Sarawak**

### **ABSTRACT**

United Nations in 2019 predicted by 2050, approximately 70% of humans will live in urban areas. The development without a proper plan can leading a treat to the environment and increasing the urban heat effect. The urban heat effect is where the condition the temperature in urban areas higher than rural. It becomes highly essential subject areas due to continues urban growth to fulfill the demand of the migration population from rural areas to urban areas. In general, prior work is limited to a subset of urban green space in mitigation of urban heat island. Hence, the effect of water bodies has not studied extensively, particularly in the tropical rainforest climate. Thus, understanding this is a key to uncover the origin of the influence land use/land cover in water bodies' effects on urban heat effect. For this study, the following critical data from Landsat 5 TM in the year 1988 and Landsat 8 TIR OLI. The first step this studied applied pre-processing, namely geometric correction, radiometric correction, and atmosphere correction. The second stage generates the land surface temperature (LST) for the year 1988 and 2019. The third stage performs 200 samplings, which 100 samplings to north and 100 to the south from Sarawak river. The measurement of LST takes from water bodies following next every 100 meters until it reached 1000 meters. The result did not demonstrate a direct correlation between distance water bodies and LST. The land use and land cover type of active influence on the LST pattern than the distance waterbody effect. However, the distance for water below 200 meters shows a strong relationship between LST. It notable that a close correlation exists between the LST distance of water bodies at this below 200 meters. The effect of the waterbody in reducing the LST at urban heat was active at a distance of 200 meters and below. There were clear benefits to be seen in the mitigation of urban heat islands. The theoretically should provide further interest to urban planners and policymakers to develop sustainable cities.