



## INTISARI

Perubahan iklim yang berdampak pada perubahan alam serta kehidupan manusia semakin terasa beberapa tahun belakang dan paling rentan terasa di wilayah pesisir (tepi laut maupun tepi sungai). Oleh sebab itu, permukiman tepi sungai yang berkelanjutan perlu dikembangkan dengan memaksimalkan kesejahteraan (*welfare*) dengan kerusakan lingkungan (*damage*) yang minimal untuk mencapai hasil (*throughput*) yang maksimal. Keberlanjutan lingkungan sungai terkait dengan penggunaan lahan (FAR), operasional dan penggunaan energi (*operational energy*), potensi pencahayaan alami (*daylighting*), *life cycle* serta mobilitas (*mobility*) yang disimulasikan oleh perangkat lunak *Urban Modeling Interface*. Hasil yang didapatkan pada kondisi eksisting Kampung Tudong memiliki nilai FAR (0.22), *daylighting* 6 kelompok bangunan belum memenuhi standar, *operational energy* (83) dan *mobility* (66). Berdasarkan variabel pada simulasi UMI menunjukkan Kampung Tudong masih belum berkelanjutan, walaupun *damage* yang dihasilkan rendah tetapi *welfare* terkait FAR, *daylighting* dan *mobility* membutuhkan peningkatan. Ada 3 alternatif rekomendasi yang dibuat, alternatif 1 memaksimalkan FAR dan peningkatan ruang terbuka hijau, alternatif 2 memaksimalkan penggunaan pencahayaan alami serta operasional energi yang efisien, dan alternatif 3 memaksimalkan mobilitas.

Kata kunci: permukiman tepi sungai, keberlanjutan, FAR, *daylighting*, *operational energy*, *mobility*



### **ABSTRACT**

*Climate change has an impact on nature changes and human life has increasingly been felt in recent years and the most vulnerable are coastal areas (seaside and riverside). On the other hand, wetlands and water bodies that are supposed to protect groundwater and surface water from contamination naturally are widely used for settlements. Therefore, for maximum results, it is necessary to develop a sustainable riverside settlement that maximizes well-being while minimizing damage to the environment. The sustainability of the river environment is related to floor ratio area (FAR), daylighting, operational energy and mobility which are simulated by Urban Modeling Interface software. The results obtained in the existing conditions of Kampung Tudong have a FAR value (0.22), the potential for natural lighting for 5 groups of buildings does not meet the standards, energy use (83) and mobility (66). Based on the variables in the UMI simulation, it shows that Kampung Tudong is still not sustainable, even though the damage produced is low, welfare related to FAR, daylighting and mobility requires improvement. There are 3 alternative recommendations made, alternative 1 maximizes FAR and increases green open space, alternative 2 maximizes the use of natural lighting and energy efficient operations, and alternative 3 maximizes mobility. There are 3 alternative recommendations made, alternative 1 maximizes FAR and increases green open space, alternative 2 maximizes the use of natural lighting and energy efficient operations, and alternative 3 maximizes mobility.*

*Keywords: riverside settlement, sustainable, land use, daylighting, operational energy, mobility*