

UNIVERSITI TEKNOLOGI MARA

**Influence of Land Use Spatial Changes Towards
River Morphology**

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AUTHOR'S DECLARATION

I declare that the work in this thesis/dissertation was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Under Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

River morphology is associated with the shape and length of a river. This study examined the morphology of the Perlis River using Remote Sensing (RS) and Geographic Information Systems (GIS) techniques. The main objective of this research was to analyze the changes in river morphology and its relationship with land use changes from year 2000 until 2016. Landsat Enhanced Thematic Mapper Plus (ETM+), Landsat 8 Operational Land Imager (OLI), Thermal Infrared Sensor (TIRS) and also aerial images of the river were used in this study. The images obtained were categorized into five types; forest, water bodies, paddy field, urban and shrubs. A significant change in land use was detected during the period of the study through interactive supervised land cover classification. Calculation of spatial autocorrelation Moran's I was performed through ArcGIS 10.3 using the inverse distance squared to analysed the pattern of land use changes. Overall, the results indicated that for years 2000, 2005 and 2016 does not significant because p-value is greater than level of significant 0.05 (95%) and 0.10 (90%). The spatial correlation also show for three years of z-score pattern and does not appear to be significantly different than random. Random spatial pattern indicates that the relationship model can be trusted because the variance for each year of surfaces were not significant at (90%) and (95%) confidence interval. The river morphology changes show that, between 2000 and 2016, the highest river width difference is 36.098m and the lowest is -6.124m. The difference river width happen when there is a river sediment deposition in riverbanks from upstream flow to the downstream. It can concluded that, for Kangar area, changes of paddy field and urban area are significant related to the decrease of river width.

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