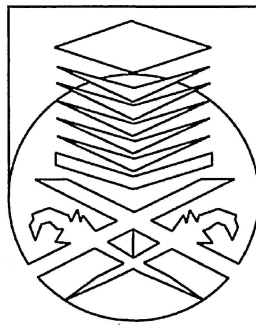


ASSESSMENT OF LAND DEVELOPMENT AND
URBANIZATION OF KUALA KRAI USING GEOSPATIAL
APPROACHES

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Thesis submitted to the Universiti Teknologi MARA Malaysia
in partial fulfillment for the award of the degree of the
Bachelor of Surveying Science and Geomatics (Honours)

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DECLARATION

I declare that the work on this project/dissertation was carried out in accordance with the regulations of University Teknologi MARA (UiTM). this project/dissertation is original and it is the result of my work, unless otherwise indicated or acknowledged as referenced work.

In the event that my project/dissertation be found to violate the conditions mentioned above, I voluntarily waive the right of my degree of the Bachelor's of Surveying Science and Geomatics (Honor's) and agreed be subjected to the disciplinary rules and regulations of University Teknologi MARA.

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ABSTRACT

Remote sensing is the acquisition of information about an object or phenomenon without making physical contact with the object. This study is carried out in order to study the uses of Remote Sensing, Geographic Information System and spatial indices of Normalized Differential Vegetation Index (NDVI) and Normalized Differential Built-up Index (NDBI) techniques in determining land development and urbanization. The area of study is stated at Kuala Krai, Kelantan, Malaysia. This location is selected due to acceptable changes of Kuala Krai land use land cover information. Spectral indices namely Normalized Difference Vegetation Index (NDVI) and Normalized Difference Built-up Index (NDBI) were generated from the Landsat TM bands covering visible Red (R), Near Infrared (NIR) and Short Wave Infrared (SWIR) wavelength regions. The Normalized Difference Built-up Index (NDBI) has been useful for mapping urban built-up area using Landsat 5 (TM) and Landsat 8 OLI. Normalized Difference Vegetation Index (NDVI) has been useful for mapping vegetation areas using Landsat and SPOT imagery. The dominant Land Use Land Cover (LULC) change for both year 2008 and 2018 is dominated to agriculture and forest, 40% and 32%. As for urban, bare land and water bodies are 14%, 10% and 3%. The LULC change has various changes between selected land use categories, from forest to agriculture is 14%, bare land to agriculture is 8% and from bare land to urban is 5%. Differences of relationship between NDBI versus NDVI for both year 2008 and 2018 is 0.0025. The transition between both years is not much different and for 2018 has a highest value of R^2 , 0.0027 and for value on year 2008 is 0.0002. Kuala Krai city has become more developed and the urbanization condition in this city has increasing by schools, commercial lots and housing area. Understanding the spatial distribution and growth of the urban area is essential for urban mapping and analyzing the change of different features on a specific area over different years with a long time interval. This research used Landsat 5, Landsat 8 OLI and SPOT-6 for Kuala Krai city in two (2) different years such as 2008 and 2018.

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