UNIVERSITI TEKNOLOGI MARA

ESTIMATION OF CARBON SEQUESTRATION ON OIL PALM PLANTATION AND ITS RELATIONSHIP WITH LAND SURFACE TEMPERATURE IN HILIR PERAK DISTRICT

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of the requirements for the degree of
Bachelor of
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AUTHOR'S DECLARATION

I declare that the work in this thesis 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 Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

Oil palm expansion has led to land use conversion in agricultural croplands as it became an issue to the environment. This research aims to examine the effects of oil palm development on carbon sequestration and its relationship with land surface temperature in Hilir Perak District within 26 years. Data used were Landsat imagery TM and OLI/TIRS and Global Solar Radiation data by particular month in year 1990, 2006 and 2016. Land use changes were identified in ERDAS Imagine 2014 by supervised classification method. Then, land surface temperature on whole study area and carbon sequestration on oil palm were derived in ArcGIS 10.5 by using algorithm formula from (Ghulam, 2010) and (Zhu, 2006) to determine the two relationships. Results shown the oil palm were 49861.50 Ha, 52354.90 Ha and 53923.40 Ha respectively where it indicated land use conversion and urbanization process occurred. Next, land surface temperature shown 38.7˚C, 31.80˚C and 41.2˚C respectively whereas carbon sequestration on oil palm plantation was 350222.50 kg/Ha, 124157.09 kg/Ha and 156,475.34 kg/Ha respectively. Lastly, the coefficient value (R^2) for two variables was 0.1458 where it shown the weak relationship. It explained, carbon sequestration on oil palm plantation is not only factors influenced to land surface temperature. It proved that land conversion on agricultural land was not the main factor has contributed to land surface temperature increased.

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