UNIVERSITI TEKNOLOGI MARA

TEXTURE ANALYSIS USING GRAY LEVEL CO-OCCURRENCE MATRIX (GLCM) FOR WATER QUALITY INDEX AT SUNGAI MUDA, KEDAH

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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 Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

The surface quality of an object is called the texture and the surface of any visible object is textured at certain scale. As well, the variation of light or dark patterns of various textures are indications for visual enjoying. Moreover, texture is a feature used as a border for images into the certain regions or places and it can be used to classify those regions. The texture provides the information in spatial arrangement of colours or intensities in an image. The aim of this project is to produce Gray Level Co-Occurrence Matrix (GLCM) mapping at Sungai Muda. The objective of this study is to generate the four texture parameters (contrast, entropy, correlation, and homogeneity) using the GLCM at Sungai Muda, Kedah and then produce the four maps of the classification based on the grey value own each parameter. Next, to identify the most significant parameter using regression analysis and mapping the distribution of WQI based on the most significant parameter. The in-situ data (water quality parameters) were obtained from Department of Environment Malaysia (DOE) and satellite image of Geo-Eye 1 with spatial resolution 0.5m was obtained from Agency Remote Sensing Malaysia (ARSM). The three software were used in this project such as ERDAS imagine, ENVI and ArcGIS. The results show four maps from the GLCM method and the most significant GLCM map will produces the distribution of the WQI map.

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