UNIVERSITI TEKNOLOGI MARA

DETERMINATION OF THE EROSION RATE OF SUNGKAI RIVER

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of the requirements for the degree 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

This study about the crucial phenomena causing the instability of the bank that is riverbank erosion. The problem is erosion that happens in Sungkai river at Hilir Perak Water Treatment Plant. Starting year 2013 was occur erosion at Hilir Perak Water Treatment Plant. Nevertheless, it becomes worse in 2014 that stated highest percentage of soil failure. This project aims to determine of the erosion rate of Sungkai River. The objective of this study is to identify the influence factor affecting to the erosion rates at riverbank, to evaluate the highly factor that affecting the erosion rate in years 2013 to 2015, lastly to analyze the erosion rate for three years based on the relationship between the predefined variables. Besides, for this thesis were used 3D Analyst and Spatial Analyst. From this method, can interpolate from point using Inverse Distance Weighted (IDW) technique for rainfall (R factor) and spatial analyst method to create surface for slope, contour, hillshade and so on. The other method for this study is used Weka software. For this method was to get the analyst of which factor that more influence to the erosion. However, the analyst must compare to the other variable such as R, K, LS and C factor. By using NDWI method, can get the C factor values for analyze the crop management compare with values from Department of Agriculture. The entire variables were used to calculate the soil loss per years. Before find the pattern of the erosion for three years, firstly determine the erosion rate for three years period. Data rainfall is a one factor of the influence in this problem. Lastly produce the location of the erosion of Sungkai River at Hilir Perak Water Treatment Plant map. In terms of overall determination, the erosion rate of Sungkai River should clearly shows in graph. Although, the pattern of the erosion it will easily identify. Some improvements are needed to make the erosion rate more understanding and easily to identified the pattern of the soil loss per years.

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