ASSESSMENT OF WATER QUALITY IN SETIU RIVER BASIN, TERENGGANU.

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MASTER OF SCIENCE
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Lihat Sebelah

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IZYAN MUNIRAH BINTI MOHD ZAIDEEN

**Thesis Submitted in Fulfilment of the Requirement
for the Degree of Master of Science in the
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To my beloved parents and dear husband,

thank you for every guidance and encouragement

given throughout the progress of thesis writing

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An assessment of the river water quality according to the water quality standards in Setiu River Basin and the identification of significant temporal spatial trends were done in the study. 14 parameters were considered to compute Water Quality Index (WQI) based on Department of Environment Malaysia and classification was being made in accordance to Interim National Water Quality Standards (INWQS). The selected parameters were water temperature, pH, electrical conductivity, salinity, dissolved oxygen, total suspended solids, biochemical oxygen demand, chemical oxygen demand, ammoniacal nitrogen, nitrate, nitrite, urea, phosphates and chlorophyll-a. Spatial and temporal trend analyses were performed to obtain more meaningful water quality information of the river. WQI-DOE analysis showed that the mean WQI value for the spatial variation was 83.99 while for temporal variation; the WQI gave value of 85.80. The analysis indicated that the quality of the river water was classified in class II and in average clean condition. The level of the measured water quality parameters were within the permissible limits of the INWQS

classification except for pH. Spatial and temporal sources of variation affecting quality of river water have been identified. The findings highlighted the deterioration of water quality in the rivers due to human activities and natural factor. Principal component analysis (PCA) was used to identify the characteristics of water quality and to assess the water quality spatial pattern. The results of PCA showed that the first four components of PCA analysis gave 90.90 % of the total variance in the data sets respectively.

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