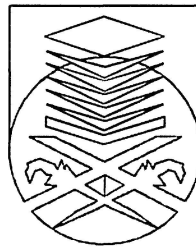


**GIS-BASED GROUNDWATER POTENTIAL MAPPING
IN STATE OF MELAKA USING ANALYTICAL
HIERARCHY PROCESS (AHP) TECHNIQUE**

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

JULY 2020

DECLARATION

I declare that the work on this project/dissertation was carried out in accordance with the regulations of Universiti 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 conferment of my degree of the Bachelor Surveying Science and Geomatics (Honours) and agree be subjected to the disciplinary rules and regulations of Universiti Teknologi MARA.

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ABSTRACT

The aim of this research is to use geographical information system (GIS) application with the aid of analytical hierarchy process (AHP) multi criteria decision analysis technique for groundwater potential mapping in the state of Melaka, Malaysia. As stated in this study, eight groundwater control parameters has been identified. The parameters are: lithology, slope, land use, soil, rainfall, drainage density, elevation, and geomorphology. Then the parameters were given judgment by Malaysia groundwater experts to derive its weightage and ranks. The weightage and ranks are derived using analytical hierarchy process (AHP) technique. The predicted groundwater potential map was classified into four distinct zones based on the classification scheme designed by Department of Minerals and Geoscience Malaysia (JMG). The results showed that about 7% of the study area falls under low potential zone, with 31% study area falls into moderate potential zone, 61% at high potential zone and only 1% falls very high potential zone. The results obtained in this study were validated with the groundwater borehole wells data compiled by the JMG and showed 31% of prediction accuracy. Results obtained from this study can be useful for future planning of groundwater exploration, planning and development by related agencies in Malaysia which provide a rapid method and reduce cost as well as less time consuming.

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