UNIVERSITI TEKNOLOGI MARA

OPTIMIZATION OF CADASTRAL ADJUSMENT USING ANGULAR DATA OBSERVATION

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CHAPTER ONE
INTRODUCTION

1.1   Research Background

Cadastral database is very important for support national development. Accuracy in cadastral database very important to help the national development. To ensure good accuracy, a better observation method should be highlighted in the cadastral work in Malaysia. Cadastral reform has had resurgence worldwide and interest in it has apparently been mounting as it was increasingly recognized to be of significance to economic development, social stability, and the environment. Cadastral surveying in Malaysia is a procedure that produces a map or plan for a land parcel or a group of land parcel. The boundary mark and boundary line need to be show without any hesitating. Every line should have the value of bearing and distance consequent to the accuracy of surveying follow to the circular and land law. (Hisam Omar et al., 2005).

Now a day, all survey work in Malaysia uses e-Kadaster system to make sure that the title survey more systematic and more efficient. According to the Circular PUK 2009, the implementations of this e-Kadaster directly and indirectly influence the conduct and procedures in carrying out the field work measures and processing in the office. In this context, the cadastral survey that has been based on computing will become more efficient. Many countries have realised and valued the importance of having an accurate digital cadastral database. In theory, a more accurate, efficient, and up-to-date cadastral database provides a superior foundation for planning and implementing a wide range of real estate applications. (Hashim et al., 2013). Advances in spatial-based technology, such as Geographic Information Systems (GIS), have shown a pressing need to retain high-accuracy spatial data to accurately depict the real world.

Bowditch adjustment is a technique for fine-tuning control points before using Least Square Adjustment to replace them (LSA). Bowditch is a conventional method that is defined as an arbitrary method in which all linear and angular measurement error estimations are equal to the perimeter line (Yunus, Yusoff, Jamil, Zurairah, & Halim, 2013). Based on their uncertainties, the Bowditch correction approach is used.

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ABSTRACT

Accuracy in cadastral database very important to help the national development. In Malaysia, the bearing was used as the main data for cadastral adjustment and is generated by a mathematical computation depending on the angle of the survey equipment. However, the mathematical calculation for producing the bearing have been an issue on systematic error due to indirect measurement. This will lead to data acquisition errors spreading, resulting in low positional accuracy in cadastral databases. To reduce systematic error in the calculation, angle measurement is an option for direct measurement in data acquisition implement to cadastral survey and cadastral adjustment. Therefore, the purpose of this study is to assess optimization of cadastral adjustment using angular data observation. The method that been use for this study are comparison between bearing and angular method. Both of method results will be analysed based on statistical analysis such residual, range, mean and standard deviations. The result of this paper will show that the angular method will be the best option to reduce the error in cadastral work.

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