Using GIS as assistant tool in predicting urban growth of Kuala Lumpur in 2025: the application of Cellular Automata model

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ABSTRACT

Recently, in the present years we are witnessing a significant urban growth of Kuala Lumpur city. Current development of Malaysia's capital city is part of the attempt to make it a global city through megaprojects. This rapid change of Kuala Lumpur into a metropolitan city is part of the significant initiative taken by former prime minister of Malaysia Dr. Mahathir Mohamad to make this country a developed one by 2020. The purpose of this research is to forecast the urban growth of Kuala Lumpur in the year of 2025. This is done by using Cellular Automata techniques by the use of ERDAS Imagine, ArcGis and other types of software. To support this study, a quantitative research method is implemented by the collection of land use data of Kuala Lumpur in year 2001 and 2010. The data collected assisted in analyzing the changes of the land use type. From the results of data collected it is found out that build up area between these two years has been increased by 5.44% and while, the un-build areas and the water bodies has been decreased respectively 6.2% and 59.42%. Throughout this study several factors that have affected the changes of the land use were identified, such as; population expansion, economic growth and public facilities. Population growth increases the need of housing, as well as the demand of places to work and shop. Rapid change in economic growth in KL results in construction of new commercial buildings to cater highly demands for commercial activities. During these years there is an improvement and upgrading of public facilities and infrastructure of the city centre of Kuala Lumpur e.g.: road, public transportation. By having all these data and the factors affecting the changes of land use, cellular automata allow us to estimate the urban growth of Kuala Lumpur in the year 2025.

Keywords: GIS, urban growth, Kuala Lumpur, Cellular Automata model, land use change.

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