ABSTRACT

PREDICTION OF URBAN GROWTH AND LAND USE CHANGE AT THE SPECIAL ECONOMIC DEVELOPMENT ZONES IN THAILAND

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The study of a characteristic of urban expansion and the urban growth prediction is essential for the decision-making in urban planning. Especially, the city is the main target for the policy to accelerate the development of economic growth and the society of the country, such as the Special Economic Development Zone in Thailand. Remote sensing and GIS techniques with temporal and high-resolution images were employed to study land use change with the application of Markov Chain and Cellular Automata models (CA_Markov) which is a model for the prediction of land use change from one period to another in a spatial and temporal dimension. For the development of the effects of forecasting by the appearance of the actual area such as geography, environment, social, and political, the logistic regression analysis for evaluating the relationships among several variables is employed to consider the effects to achieve more realistic forecasts. The prediction model of integration of Markov Chain and CA_Markov with logistic regression analysis showed improvements for the land use prediction result. Besides, the regression model is used to define the driven factors which influence on the land-use change and urban expansion. This study will lead to an understanding of the characteristics of the area and sustainable development planning.

Keywords: Land use classification, Urban Growth, Object-based, Markov chain, CA-Markov, Logistic Regression