Land Use Change Modeling Using Cellular Automata, Case Study: Karawang City, West Java Province, Indonesia

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Abstract : Cellular Automata are widely used in land use modeling, it has been proven powerful to simulate land use change for small scale in many large cities in the world. In this paper, we try to implement CA for land use modeling in unique city in Indonesia, Karawang. Instead the complex numerical implementation, CA are simple, and it is accurate and also highly dependable on the on the rules (rule based). The most important to do in CA is how we form and calculate the neighborhood effect. The neighborhood effect represents the environment and relationship situation between the occupied cell and others. We adopted 196 cells of circular neighborhood with 8 cells of radius. For the results, CA works well in this study, we exhibit several analyzed and proceed of zoomed part in Karawang region. The rule set can handle the complexity in land use modeling. However, we cannot strictly believe of the result, many non-technical parameters, such as politics, natural disaster activities, etc. may change the results dramatically.