

MODEL OF LAND COVER CHANGE PREDICTION USING COMBINATION OF BINARY LOGISTIC REGRESSION (BLR) AND MARKOV CHAIN (MC) BASED ON ACCESSIBILITY (CASE STUDY : WEST JAVA)

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Abstract : Land is a fundamental factor in the production activity and is closely related to economic growth that support the needs of human life. In many cases, found that human activities related to the land use are often uncontrollable and have a negative impact on the environment, both locally and globally. More broadly, this activity would lead to land cover changes and give effect to the various physical changes such as global climate change. It is necessary to know the state of land cover in the future as an input in decision making.

In an effort to understand the phenomenon of land cover changes, can be approached through land cover change modeling. One model that was developed is Binary Logistic Regression (BLR). Based on the ability, this model can simulated the prediction of land cover changes that occur in a region by considering the parameters that represent the characteristics of the studied area, in this case represented by accessibility.

Although BLR is quite easy and simple to use in predicting land cover changes , but there are some limitations of this model. BLR models only provide the output of location where land cover have been changes without being able to know what type of the land cover. In other words, lack of BLR models to predict land cover changes can only be known whether or not a land cover change, but can not predict type of land cover itself. BLR models limitation will be solved by doing a combination with Cellular Automata- Markov Chain (CA-MC). CA-MC is a model that used to determine the statistical change probabilistic for each of land cover type from land cover data at different time periods. CA-MC is able to provide the output of land cover type that should occurred.

In this study, West Java area are selected as the study area. Based on the facts and data , West Java has a fairly high economic activity that will directly impact on many things, including a lot of the changes on land use, which led to a change on land cover. Results from a combination of BLR models and CA-MC in predicting land cover changes showed an accuracy rate of 95.42%.

Keywords : Land Cover Change, BLR, CA-RM, Characteristics of West Java