MODELING FACTORS THAT INFLUENCE THE HOUSEOLDS DUMPING DOMESTIC BLACKWATER WASTE IN EASTERN SURABAYA WITH LOGISTIC REGRESSION AND GENETIC ALGORITHM

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Abstract

Sanitation is a very important aspect for the community and environment. Quite a few urban dwellers still dump domestic black waste water, and contaminate soil and the local environment. Accordingly, this study explains factors that influence the households dumping domestic waste in Eastern Surabaya with predictor variables targeting the households disposing domestic waste in septic tanks or another place. Factors that influence this consist of size of household, educational level of head of household, profession of head of household, income of head of household, expenditure of household, condition of drainage, illness acquired, water for bathing and washing and sanitary practice. Methods used include binary logistic regression and genetic algorithm. To draw a comparison between the two methods in seeing the lower values of Root Mean Square Error, genetic algorithm is applied to estimate parameter, and variable that is also used with binary logistic regression. As a model, genetic algorithm achieves a better result with Root Mean Square Error 0.4319, on the other hand, binary logistic regression gets a value of Root Mean Square Error 0.4749. Models having a significant influence include expenditure of household, illness acquired under the category of dengue fever and paratyphoid under unsanitary practices. The probability of household not disposing
domestic black waste water in septic tanks is 0.989 and 0.011 for households disposing domestic waste in septic tanks.

**Keywords**: Sanitary, Binary Logistic Regression, Genetic Algorithm