First-order interaction multiple regressions model on water quality index in manjung river and its tributaries

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Abstract

This research demonstrated the procedures **in** choosing the best **model in** forecasting the **water quality index** (WQI) **in Manjung River** and its **tributaries** using **multiple regressions**. Six independent variables which are the **water quality** parameters and WQI as the dependent variable were included **in** this data set. The **Multiple** Regression (MR) models were involved is the **first-order interaction** with 57 possible models were considered. **In** this research, the process of getting the best **model** from the total of 57 possible models had been shown. The backward elimination of variables with the highest p-value was engaged to get the selected **model**. The best **model** includes using the **first order interaction** with variables of (DO, COD, BOD, SS, AN and pH). The best **model** obtains then been verified by the Mean Absolute Percentage Error (MAPE) calculation to quantify the models' relative overall fit.

Author keywords
Eight selection criteria; **First-order interaction**; **Multiple** regression; **Water quality index**