

**DETERMINATION OF FREE FLOOD AREAS
DUE TO SEA LEVELS RISING BY USING BINARY
INTEGER PROGRAMMING (BIP)**

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DECLARATION BY CANDIDATE

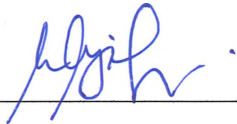
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ABSTRACT

Floods have repeatedly occurred in some areas in Marang, Terengganu in 2017, where the water at Sungai Marang passes its warning level. Due to this, the flood has destroyed a big amount of properties, increasing number of victims and make the community live in discomfort. This research focused on how to optimize human population that live along the river. This is to accommodate the suitable location for the population development at the designated area to minimize the flood risk in the future. This study used two dimensional (2D) plan layout of Sungai Marang to analyze and identify the suitable location in determining the free flood areas. We used Binary Integer Programming (BIP) and simplex method in order to optimize the human population distribution areas at Sungai Marang. The optimization model is represented in matrix form and MATLAB software was used to solve the optimization problem. Thus, from the result that was obtained, it shows the location that is suitable to accommodate human population.

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