Debris Flow Susceptibility Assessment at A Basin Scale:A Case Study at Bundu Tuhan, Ranau, Sabah, Malaysia

ABSTRACT

Debris flow occurrence is quite common in mountainous areas such as those in the Crocker Range of Sabah, Malaysia especially during prolonged heavy rainfall. While the risk posed by debris flow is enormous, study on its susceptibility level is lacking in Sabah. In the absence of a proper study, the mitigation strategy to address the debris flow hazard appears to be carried out on an ad-hoc basis. This study aims to determine the susceptibility level of debris flow at a basin scale which will be useful for mitigation purpose. Based on a case study at Bundu Tuhan, Ranau, the mapping of debris flow susceptibility level by using Frequency Ratio model displays that most of the study basin is covered by low class which constitutes 49.64% of the total study basin area. The debris flow occurrence is predominantly governed by the causative factor of Normalized Difference Vegetation Index followed by the distance to stream and stream density. The validation of the predictive model also shows that the Frequency Ratio method gives a good success rate of 86%, thus it can be used as a reliable tool to reduce the potential hazard associated with debris flow in the study area.